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ORIGINAL ARTICLES.

PAINLESS TIC OF THE FACE.

TREATMENT BY FREEZING WITH RHIGOLENE SPRAY.

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THIS local affection of the muscles of the face supplied by the seventh pair of nerves, or by some one of its branches, has interested me at different times of my clinical life, and I have, at various periods, sought to treat the malady by as many forms of medication, but always in vain. Recently my attention has been re-directed to the matter in consequence of my having seen three cases of facial tic, and having been so fortunate as to cure one of them, and to relieve another.

Naturally one looks to the cause of a disorder of this kind for aid in directing methods of treatment, but the causes spoken of by authors such as Ross, as influenza, tumor at the base of the brain, aneurism of the vertebral artery, inflamed glands in the vicinity of the stylo-mastoid foramen, abscesses of the parotid, caries of the temporal bone, etc., have none of them ever furnished me with an example of painless tic due to direct irritation of the facial nerve in some parts of its course. Localized tic of some of the muscles of the face, I have, of course, seen as a rare result of intracranial disease. Neither have I seen it as due to reflex irritation conveyed by the fifth nerve, and, although I have searched every case with care, neither carious teeth, nor irritations of the eye, nor disease of the antrum have enabled me to connect any of them with facial tic as cause and effect. I have, it is true, twice seen painful neuralgia of the face converted into neuralgia with painful tic, and ending in a cure of the neuralgia, but leaving a persistent painless tic. I have also seen spasm of the sterno-cleido-mastoid extending by degrees until it produced a unilateral convulsive spasm of the face. But this seems to be clinically distinct from what is ordinarily known as painless tic.

The symptoms of the clonic form of facial spasm of which I am now speaking have been over and over again described, but there remain, nevertheless, some points in connection with this disorder which I do not see spoken of in the descriptions given by the various authors who have written on this subject.

I find in my note books records more or less complete of nine cases: Five existed on the left side alone, two on the right side alone, and two were found on both sides, but I think it is more common than these numbers would indicate to find it existing on both sides. The affection is, of course, far more violent in some cases than in others. It may vary from the slightest twitching of the eyelids, in which such twitchings are almost a normal phenomenon, so frequent are they in nervous people, to the most extreme excursions of the large muscles and skin on one side of the face, occurring at intervals of a few seconds, or some minutes, and in certain cases being frequent during the day, in others coming in sets of spasms, so to speak, lasting for twenty or thirty minutes, or for one or two hours. In all of my cases these spasms ceased during sleep, and commonly did not recur until some little time after the patient had passed out of that state. I have once seen a case of these paroxysms originating at each attack with pain, of which Ross speaks as an occasional thing.

I have traced with care in some of my cases the onset of the attacks in individuals intelligent enough to have noted and remembered how they started. In nearly all in which I could obtain a history the spasm seems to have originated in the muscles around the eye or under the eye, and to have spread thence through the other muscles of the face. It has been usually observed that these actions do not damage volition except during the actual occurrence of the convulsive acts. In some of my cases of extremely violent spasm the facial lines on the side affected seem to have been deepened. In two cases, at least, apparently not differing from the others, there was undoubtedly some slight defect of voluntary power on the side of the spasm, and the face exhibited that curious peculiarity sometimes seen in slightly paralyzed persons where, when they smile the smile begins on the sound side and follows a little more tardily on the other. The most careful examination has never revealed to me any sensory changes as to touch on the side affected by tic. Nor have I in a single one of the general cases of tic been able to suppress it by pressure on any of the points at which nerves emerge or elsewhere, as may so often be done in that peculiar form of facial spasm which affects the lids, causing a long-continued closure, such as indeed may endure for weeks. Since my attention has been redirected to this subject, I have examined also the electric conditions of the muscles on both sides of the face in people affected on one side, and have observed, in two instances at least, a far more ready response to induction currents on the side attacked by spasms than upon the other.

I have never had the good fortune to see one of these cases at its outset, and probably few have been called to treat it at that time, since commonly it begins with some slight twitching, as I have said, around the eye, and extends thence to other muscles of the face and is not seen by the physician for treatment until it has become quite extensive enough to be a source of anxiety or annoyance.

Facial tic of the type now under consideration is apt to be increased by moderate emotion, as meeting strangers and becoming conscious of observation. Extreme emotion will occasionally suspend it, as it will the wildest local chorea, of which I have elsewhere related a striking case. It is, I think, unnoted in the classical accounts, that in some cases mastication, deglutition, laughter, or talking are competent to cause attacks in persons affected with tic. I observed, also, that the first jet of rhigolene spray caused a violent facial spasm in two of my cases. In some tic patients walking brings on an attack, and any violent motion does the same.

If we conceive of a motor face centre as in a state to discharge energy at any moment, and needing but the least irritative contribution to cause spasm, we shall have a fair mind image of the state of things described. The act of speech, mastication, laughter, all motion in fact, all emotion, the sudden chill of rhigolene, give rise to overflows of nerve energy which sweep over the whole nervous system, and contribute enough added stimulant to excitable centres to occasion spasmodic action in related muscles.

This seems to me to be the mechanism by which we may explain the action of motion, sensation, and emotion in bringing on the attacks of tic in persons subject to it. Like overflows seem to be able to reinforce already irritated sensation centres so as to cause pain, because in trigeminal neuralgia mastication, speech, and laughter seem all to be capable of suddenly bringing on pain fits.

As one of the curiosities of the subject, I may add that the disease is sometimes suspended by a grave, intercurrent malady—as pneumonia—and sometimes cured as by typhoid fever. It has been my lot to see many bad cases of tic, of some of which I have kept notes, but I have never cured, or greatly aided, a case of long standing which was not due to hysteria.

I have never been forced to stretch the facial nerve as a remedy, but have seen an example of perfect success in a patient of my colleague, Dr. Sinkler. The operation by Dr. Wm. W. Keen was done more than three years ago, and to-day there is no trace either of paralysis or of spasm. There are, however, many reasons why people shrink from this somewhat serious operation, and there are varieties and mild forms of the disorder in which one naturally hesitates to resort to the knife. Dieffenbach's operation, in which he divided subcutaneously all the muscles affected by spasm, seems to me to be a method which should not be allowed to go out of use, as he is said to have had with it good success. For my own part, I have used all the ordinary remedies mentioned in the books, but have failed with one and all.

A few months ago I saw in a middle-aged lady a case of unilateral facial spasm, which set me to thinking afresh whether I might not be able to relieve her, and it then occurred to me that it might be possible to lessen the conductibility of the facial nerve by other means than stretching it, and that if I could freeze it where it spreads out on the face I might effect some good in this disagreeable malady. A little reflection, or, indeed, the use of my own memory, would have told me that with the means employed I should not be able to freeze so deeply as to produce what I expected, a congestion of the nerve I meant to freeze.

By placing a finger within the cheek and freezing the outside with the spray, it is easy to discover, as I myself found, that the deepest freezing possible with rhigolene does not extend through the thickness of the cheek, so that my expectation of thus directly affecting the nerve was futile, and any explanation founded upon a belief that the nerve was frozen must be laid aside. Whatever effect I did produce—and it will be allowed that it was somewhat interesting and remarkable—must have been due to a quite superficial freezing, and probably to reflex effects exerted through the trigeminus.

The first case in which I employed this agent was that of Mrs. B., aged sixty. The lady applied to me on November 4, 1886, the victim of a painless tic of the right face, which occurred at intervals, and had lasted for four years; never absent for more than half an hour of the waking day, it returned in spells, which persisted a few seconds at a time, and repeated themselves about fourteen times in a minute, after which there was apt to be a period of rest. The excursions of the face were most extreme, and seemed to affect all the muscles of the face so as to distort it for a time, closing the eye on that side in a most inconvenient fashion. Absent during sleep, it returned within an hour after waking, and, like neuralgia of the fifth nerve, was apt to be brought back or increased by the acts of talking, laughing, or eating. The lines of the face on the side of the spasm were a little more deeply marked than on the other, and the faradic reactions were distinctly better. She was somewhat sallow, but her blood count showed no marked anæmia, and, except an occasional trace of albumen in the evening, her urine was without casts. As to the cause of this unpleasant malady, I could not even make a reasonable guess; nor was there in the state of her teeth, her eyes, or her general health anything which explained it. I should add, as regards the spasm, that it was not capable of being reinforced by distinct muscular acts, nor did it seem to me, though of this I was not sure, to be competent to reinforce the knee-jerk.

After using the spray for the first time, she returned the next day, telling me that for two hours after its use there had been no spasm of the face. After five sprayings, on successive days, the face ceased to make any violent movement, the spasms became less and less severe, and, after fourteen applications, were confined entirely to the muscles around the eye, which ceased now to close that organ convulsively. At this time, having satisfied myself of the value of the local remedy used, I began to give tincture of chloride of iron internally, and malt extracts for the purpose of improving general nutrition. After twenty freezings had been used on successive days her condition was so satisfactory that she declared the spasms rare even under the eye, not more than a dozen times a day, when usually their recurrence could be traced to the act of mastication, or, at all events, to eating. She

was now absent for seventeen days, and, on her return, exhibited no change for the worse. For a few days the freezing was renewed, when I again allowed her to abandon the spray, as she declared herself entirely satisfied with the result, even if no larger good were gained. I directed her, on her return home, to apply ice and salt to the face daily over the region of the *pes anserinus*. This, however, made her face so very sore that she had to poultice it at one time, and, after twenty applications, at various intervals, she abandoned the use of this form of cold.

On May 2d, of this year, she returned to me in very good condition, certainly very much improved in general health and appearance, and with so small an amount of spasm as to satisfy her that no further treatment was necessary. I advised, however, that the spray should be applied by her physician thrice a week, but as long periods had elapsed without any form of application of cold, it seems probable that we may reasonably expect her to remain relieved. This case was valuable to me, and interesting because it was the first time I had, in a large experience, succeeded in relieving a facial tic.

In the second case, that of a lady, aged sixty-nine, I was less fortunate, perhaps because the malady had lasted so long. It began in 1878, under the left eye, and extended thence without pain or numbness. It was growing worse, and occasionally of late awakened her in the morning, and was now especially apt to recur with increasing violence if she was tired from any cause; talking and eating both seemed to provoke attacks. When she first applied to me she was rarely free from spasm for more than fifteen minutes at a time during the waking day. Her attacks occurred, as a rule, every two or three minutes. They were large spasmodic movements, enduring about fifteen seconds, during which time the face was drawn violently to the left, the lids quivered with a fine tremor, and there was a complete closure of the left eye, which happened, unfortunately, to be by far the better organ of the two. There was a slight extension of the spasm to the skin and muscles of the neck on the left side. The facial lines were less distinct on the left, the right eye was myopic and astigmatic, but competent correction had not at all relieved the spasm.

In this distressing case rhigolene spray was used assiduously seventeen times. No better effect was obtained than so far to lessen the spasm as to prevent, up to this time, the constant closure of the eye during the attacks. Beyond this I could see no gain, although she herself, and her family, insisted that the attacks were rather less frequent and less violent.

I should have preferred to wait for other opportunities before publishing the successful result of a single case; but painless tic, severe enough to seek aid, is rather rare, and I, therefore, give this example without claiming for the spray any more than what is here set forth. No doubt others will test its value, and we shall soon know if mine was, for some reason, but a mere piece of good fortune.

A word as to the method of using the spray. Rhigolene is by far the best agent, far better than ether, and it is possible that in sudden freezing we have a therapeutic means too much neglected. Used alternately with heat, it certainly is of value in neuritis, and certain neuralgias.

When employing the spray for tic, I use it over the expansion of the facial, and over the exit points of the fifth nerve. The reaction is intense, and the part sprayed remains deeply flushed. When it becomes sore, it is only needful to avoid the tender region for a day or two.

The nature of the influence thus exerted, and probably affecting most the sensitive nerve, is but a matter for speculation. It is some time after the spraying before the maximum effect is obtained in the way of lessening the spasm, and this fact reminded me of the interesting results obtained by freezing the skin in birds, when often ten minutes elapsed before the convulsive acts thus produced in birds were to be seen. No such extreme phenomenon follows the use of the spray in man or quadrupeds, but, without doubt, even in these surface freezing must profoundly affect the centres.

OBSERVATIONS ON THE ACTION OF STENOCARPINE,

THE NEW LOCAL ANÆSTHETIC AND MYDRIATIC.

BY EDWARD JACKSON, M.D.,
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AFTER Koller demonstrated the possibilities of local anæsthesia as produced by cocaine, various other substances, as brucine, lewinin, and apomorphine, as well as other alkaloids closely allied to cocaine, were announced by different observers as possessed of somewhat similar powers. But all failed to make good their claims to consideration alongside of cocaine; the latest, drumine, having proved in the hands of others utterly destitute of the powers ascribed to it by its discoverer. The discovery has now been announced of an alkaloid, said to be obtained from the leaves of a tree common in Louisiana; which certainly equals, and perhaps surpasses, cocaine in its power to abolish the sense of pain in the part to which it is applied.

The story of the discovery is, that Mr. M. Goodman, V.S., having applied to the fetlock of a horse a poultice made, by chance, of these leaves; subsequently made a free incision into the part without eliciting any evidence of pain. He furnished some of the leaves to Dr. Allen M. Seward, who obtained therefrom an alkaloid, a two per cent. solution of which caused local anæsthesia in the eye of a cat. Some of this solution was placed in the hands of Dr. J. Herbert Claiborne, who found that it produced anæsthesia in the eye of the rabbit and of man; also of the mucous membrane of the nose, and of the skin. That it produced wide dilatation of the pupil, and in some cases a diminution of intraocular tension, and slight dulling of the sensibility of the tympanic membrane. Dr. Claiborne published an account of the drug, and the results obtained from its application, in the *Medical Record* of July 30, 1887.

After this Dr. H. Knapp experimented with it,

applying the same solution to the mucous membranes of the eye, nose, throat, urethra, and rectum, producing anæsthesia in all of them. Hypodermatically it produced local anæsthesia of the skin, and a drop applied to the glans penis had the same effect; but in Dr. Knapp's hands external application to the healthy skin gave uniformly negative results. This I shall refer to presently. The injection of it into the cellular tissue of rabbits caused "violent attacks of tetanoid convulsions in which opisthotonus was a prominent feature," recurring every ten to forty seconds, for some fifteen minutes, but followed by complete recovery within an hour. The amount of the solution thus used to produce these symptoms varied from five to twenty-five minims. Ten minims injected directly into a vein of a rabbit's ear caused fibrillary convulsions, or tremors, of the front part of the body, and death in ten seconds. "The picture furnished by these experiments bears the greatest resemblance to that of strychnine poisoning." But "chemical tests for the detection of strychnine," applied to the drug, "proved negative" (*Medical Record*, August 13, 1887).

After reading Dr. Claiborne's account of it, I obtained some of this two per cent. solution of the drug. It was clear, of a faint brown tint, and had a taste distinctly bitter, but nothing like the intense bitter of quinine or strychnine. A few seconds after its application to the tongue and lips there was a peculiar sensation of numbness precisely similar to that produced by cocaine, but more intense than that caused by the four per cent. solution of the latter drug. No application I have yet made to the human subject has produced constitutional symptoms; but not over four minims of the solution have been used in any one case.

One drop, a half minim, of the solution, was placed in my left conjunctival sac. It caused smarting more noticeable than any similar application of a four per cent. solution of cocaine, but still not severe, and passing off in a few seconds. Succeeding this there was the feeling of "stiffness," "dryness," or "coldness" of the lids, which cocaine produces, and immediately a notable widening of the palpebral fissure, as compared with that of the other eye. As soon as I could test it, within two minutes and a half, there was complete anæsthesia of the conjunctiva and cornea. I pinched up the conjunctiva with fixation forceps without any sense of inconvenience, but dragging so as to pull on the subconjunctival tissue still caused pain.

In 10 minutes such dragging caused no pain.

At 15 minutes the anæsthesia was still complete, and the pupil just beginning to dilate. The width of the centre of the palpebral fissure, was in the right eye, 10 millimetres; in left, 11 millimetres.

20 minutes. Anæsthesia less complete. Diameter of pupil, which was 3 millimetres to start with, is now, by the same light, 4¼ millimetres. Power of accommodation reduced from the normal, 8, to 7.50 dioptres.

30 minutes. Pupil in bright light 8 mm., in darkness 9 mm.

40 minutes. Anæsthesia nearly gone. Pupil fixed, 9 mm. in diameter. Palpebral fissure as before. Accommodation 5.50 D.

60 minutes. Anæsthesia entirely gone. Pupil unchanged. Accommodation 3 50 D.

85 minutes. Accommodation 2 D.

3 hours. Accommodation 0.50 D.

6 hours. Palpebral fissure as before. Accommodation 0.50 D.

12 hours. Pupil unchanged. Palpebral fissure still wider than the right, but the difference less than before. Accommodation 0.75 D.

24 hours. Palpebral fissure equal in the two eyes. Pupil in bright light 8 mm., in the dark 9 mm., contracts quite notably with strong convergence. Accommodation 3 D.

48 hours. Pupil 5½ mm. in light which makes the right pupil 3 mm.; dilating to 7 mm. in darkness. Accommodation 6.50 D.

3 days. Pupil under conditions mentioned above 4½ and 6½ mm. Accommodation 7.25 D.

4 days. Pupil 3¼ and 6½ mm. Accommodation 7.75 D.

5 days. Pupil still a little larger than its fellow; and accommodation perceptibly weaker than in the right eye.

6 days. Recovery complete.

Instillations of the same solution in the eyes of sixteen other persons, seven males, nine females, varying in age from five to fifty-two years have in every case caused the same anæsthesia; complete within one, two, or three minutes, and passing off mostly within a half hour. In all, the palpebral fissure was notably widened, the pupils widely dilated and fixed; and the power of accommodation very nearly, or quite, abolished by a single instillation. When the instillation was repeated the accommodation was always entirely abolished. When no other mydriatic was used, recovery of the accommodation and pupil was almost complete at the end of three days. That is, it had reached that stage where it is commonly spoken of as complete, and where its incompleteness cannot be detected except by comparison with the fellow eye kept in a normal condition. Dr. Claiborne speaks of recovery, in the trial made by him, as complete on the third day.

In three cases the drug was used to paralyze the accommodation, for the purpose of determining the refraction. In all it answered the purpose satisfactorily; and in one the subsequent use of duboisine revealed no additional hyperopia.

In four cases it was used simultaneously with duboisine (after the methods given for cocaine in my paper on that drug in THE MEDICAL NEWS of Aug. 27, 1887); in three cases it was so used with homatropine; and in one with hyoscyamine; and in all it caused a wider dilatation of the pupil, a dilatation very noticeably wider, than did the other mydriatic.

In no instance could I satisfy myself that it produced any change in the degree of intraocular tension; although I sometimes suspected it slightly decreased it. In no case did I perceive those corneal changes which I have noticed after the equally free use of a four per cent. solution of cocaine; and which are described in the paper above referred to. In these normal eyes, and in three eyes suffering from acute catarrhal conjunctivitis, there seemed to be less blanching of the conjunctiva than I would expect to see from the same use of a four per cent. cocaine solution.

Hypodermatically in the forearm one and a half grains of the solution caused complete insensibility of an area about four by eight millimetres in extent,

reaching mainly from the seat of injection toward the extremity of the limb. The anæsthesia was noticed instantly, but seemed to extend its area for about ten minutes. It disappeared in half an hour.

Applied externally to the skin it caused complete anæsthesia. This was tried four times on the flexor aspect of the forearm, and on the back of the hand. The method of application was simply to moisten the spot and keep it continually moist with the solution. The anæsthesia was very marked in ten minutes, but continued to increase slightly for half an hour. At the end of that time I could plunge a needle into the skin without the slightest sensation. In one of these trials on the flexor surface of my own forearm, at the end of ten minutes I commenced an incision; and keeping the blood wiped away and the surface continually moist with the solution, completed it within five minutes more, to the depth of three millimetres, without the slightest unpleasant sensation, either at the time or afterward. The healing was normal. In this respect my observations are directly opposed to those of Dr. Knapp, and in accord with those of Drs. Claiborne and Seward. I think Dr. Knapp's experience may be accounted for in one of two ways. First, the anæsthesia, although absolute, is in my experience very superficial. By plunging the point of the needle somewhat deeply, one may feel it pass from the layer anæsthetized into one in which it causes the usual degree of pain.

To make a painless incision in tissues anæsthetized in this way, one must do it by repeated superficial cuts with the knife, keeping all the time the cut surface bathed with the solution. Possibly, Dr. Knapp made his first incision or plunged his needle too deeply, passing into the underlying tissues still acutely sensitive. But it is more probable that he entirely prevented the absorption of the drug by preliminary treatment of the skin, adopted doubtless for the purpose of facilitating it. He washed the skin with soap and water. The writer tried washing the flexor surface of his forearm with soap and water, and then immediately applied the drug in the way above described. After half an hour no anæsthesia had been produced, although the surface was covered by the sticky residue left by the drying of the solution. The rationale of this is very simple, a portion of the free alkali of the soap probably remained adherent to the skin and promptly precipitated the alkaloid from the portion of the solution that came in contact with it. Such a solution is very sensitive to the action of a free alkali. The simple blowing upon this solution or a similar solution of cocaine, of air containing free ammonia, quickly renders it milky with such a precipitate. In the trial mentioned, when the solution of the drug had failed to produce anæsthesia at the end of the half hour, I stopped its application, and placed on the surface covered with its residue, a dilute acid solution, and in ten minutes had quite a notable anæsthesia.

Upon frogs this drug acts as a violent depressomotor poison; reflex movements continuing somewhat after the abolition of voluntary movements. In my first trial of the drug on the frog, I injected three-fourths of a grain of this solution into the subcutaneous tissue, and replaced the animal in water. It swam easily for an instant, stopped, drew up its limbs, and retracted its eyes a little, and in two minutes was to all appearances dead, except for a slight precordial pulsation, which continued for two hours. This frog weighed ninety grains. The relatively smallest fatal dose was one grain of the solution given to a frog weighing three hundred and ten grains. In four minutes it lay entirely relaxed, giving slight reflex movements. In five minutes no sign of life except the precordial pulsation, which continued for over two hours.

The largest dose required to produce death was two grains of the solution, for a frog weighing two-hundred and forty grains. Here, in half a minute there was diminished retraction of the eyes when touched. In fifty seconds its head had sunk down upon the table. At seventy-five seconds the last voluntary movement was noted. In two minutes reflex movement was abolished. The precordial pulsation was perceptible, and thirty per minute, at ten minutes, but soon after that ceased.

This same frog had previously recovered after receiving one grain of the solution. At that time there had been, in 1 minute, great weakness, cessation of all spontaneous movements, and inability to keep or regain the normal position of floating in water. In 3½ minutes, no breathing, no retraction of the eyes when touched, and very slight reflex movements on stroking. In 8 minutes, more marked reflex movements. In 15 minutes, good retraction of the eye and reflex movements on stroking. In 10 hours, quite well. It had also recovered after receiving four grains of a four per cent. solution of cocaine.

The action of smaller doses is shown in the following:

A frog, weighing 195 grains, received hypodermatically one-fifth of a grain of the two per cent. solution.

In 2 minutes it was notably weaker, and when laid on its back could not recover its position.

8 minutes. Lies flat on its belly; makes no movement spontaneously, and but little when smartly pricked. Retraction of the eyes and reflexes from stroking markedly lessened. Cannot keep position in water.

15 minutes. Reflexes better; more movement when pricked.

25 minutes. Its movements are much more vigorous, but not well coördinated. Cannot regain its normal position in water, but keeps it when once placed in it. Does not move spontaneously.

35 minutes. Recovers position promptly in water, but does not when laid on its back on the table.

70 minutes. Recovers position when laid on its back on the table.

10 hours. Apparently quite well.

In two "pithed frogs," one non-fatal and one fatal dose in each, the action was apparently the same as in the normal animal.

In every case, as in those above noted, in which the drug caused death, the heart continued to beat steadily, often for hours, after all other evidence of life had ceased. When, however, the chest was opened and the heart was bathed in the solution, its action immediately became slower, then more feeble, and presently ceased.

In studying the action of this drug, one cannot

but be struck with its similarity to that of cocaine. The sensations produced, the complete though brief anæsthesia, the widening of the palpebral fissure, the dilatation of the pupil greater than that produced by any other mydriatic except cocaine, and especially the general physiological action; in the frog, killing with symptoms of general motor paralysis, not ordinarily affecting the heart much, but slowing and weakening it when directly applied; and the tetanic convulsions in warm-blood animals, such as are caused by cocaine, and have been produced by that drug in man;[1] are all common to the action of both drugs. Even the anæsthesia of the skin I have produced, in nearly or quite equal completeness, with a four per cent solution of cocaine.

This similarity of action raised in my mind the question, whether this new drug possessed any power which would not be possessed by a solution of cocaine to which had been added a portion of one of the stronger mydriatics, as duboisine or hyoscyamine. It seems to me, however, from a careful review of my experience with it, that this drug does possess certain powers, in degree at least, peculiar to it. My impression, from my present experience, is that the solution used, said to be a two per cent. solution, is a more powerful anæsthetic than the four per cent. solution of cocaine. It certainly has a more powerful influence on the frog. The frog killed by two grains of this solution had withstood the action of four grains of the four per cent. cocaine solution. And in a series of some thirteen parallel experiments performed on frogs with these two drugs, cocaine always showed itself the less powerful. Yet this new drug has seemed to exert less influence on the local circulation and the nutrition of the cornea than cocaine.

Then, too, cocaine has but little power of paralyzing the accommodation, while this new anæsthetic-mydriatic has a much greater power in this direction. Still the recovery after the use of the new drug is more rapid than after any other efficient mydriatic, except homatropine, and it has a more powerful influence over accommodation than homatropine. The superiority of the new drug in this direction is especially manifest in its ability to overcome the influence of eserine. Thus the influence of cocaine on the pupil is overcome by one-fiftieth of its weight of eserine, and its influence on accommodation by still less.[2] Homatropine is neutralized by one-eighth its weight of eserine. But this drug requires two-thirds or four-fifths of its weight of the myotic to overcome it.

If it is a local anæsthetic more powerful than cocaine, and a mydriatic more powerful yet brief in its action as homatropine, it must be a new drug, and one of great practical importance.

It will be noticed that I have persistently avoided calling this drug by the name which has been given it by Dr. Seward, and this has been because I do not believe it is the name by which it should be finally known. Speaking of the origin of the drug, Dr. Claiborne says:

"Mr. Goodman informs me that the tree is known in the locality mentioned as the Tear Blanket Tree. It grows to the height of thirty-five or forty feet, with a diameter to the bole of about eighteen inches, and a spread of foliage of about thirty to thirty-five feet. The leaves resemble those of an acacia. The bark is smooth. From the ground up the tree is furnished with clumps of forked spines or thorns, the parent spine springing at right angles from the bough or trunk. As fruit it bears pods eight or ten inches in length, flat and slightly curved, containing seeds and a viscid juice. The spines are very tough and highly polished, and the wood is extremely tough. It grows in clumps and singly, and is abundant in Louisiana. From the likeness of the tree to the *Acacia stenocarpo*, Dr. Seward dubbed the new alkaloid stenocarpin."

In Professor Charles S. Sargent's "Report on the Forests of North America," vol. ix. of the *Reports of the Tenth Census of the United States*," I find no such tree as the *Acacia stenocarpo* mentioned; and it is not conceivable that a common tree yielding a valuable wood should have entirely escaped notice. Mr. Goodman's description of the tree, however, corresponds closely with that of the *Gleditschia triacanthos*, or common Honey Locust, which grows plentifully in Louisiana, and in many other parts of the United States. Extracts made from the leaves of the honey locust growing near Philadelphia, however, have failed to exhibit any anæsthetic or mydriatic properties. Another member of the same genus, *G. Monosperma*, the Water Locust, which is also common in Louisiana, may possibly be the tree in question.

So while it is pretty certain that the source of this drug is not a tree known to botanists as the *A. stenocarpo*, it remains very uncertain what that source is. On that question, and on the chemical constitution and characteristics of the alkaloid, more light is much to be desired. Enough has been learned of its physiological action to indicate the directions for therapeutical experiment, and we must now look to further clinical experience to fix its proper position and ultimate value.

[1] Two cases by S. T. Earle, Maryland Medical Journal, March 19, 1887.

[2] See "Influence of Cocaine on the Pupil and Cornea," before referred to.

THE ORIGIN AND HISTORY OF THE EPIDEMIC OF TYPHOID FEVER AT MT. HOLLY, N. J., DURING THE MONTHS OF JUNE, JULY, AND AUGUST, 1887.

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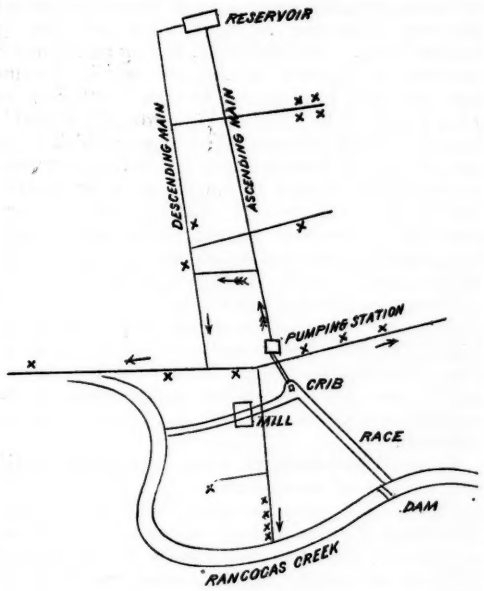
MT. HOLLY is supplied with water from Rancocas Creek. The water is not taken directly from the creek, but from a mill-race, as shown in the accompanying map. When the mill runs, water flows through this race; but when, after the day's work is over, the mill stops, the flow is interrupted also. The crib of the pumping-station is located in an angle or cul-de-sac of this race, so as to stand outside of the current.

From the crib two iron conduits, one of ten inches and the other of twelve inches, and 350 feet in length, with a fall of four inches in this distance, connect with the pump-well. The well is four and a half by eight feet, and four feet in depth. It is not separated

from the crib by any arrangement of filters or screens.

Prior to the time of my visit of inspection, but several weeks after the epidemic began, the mud which had accumulated at the bottom of the crib and pump-well was removed, and the crib was built out a distance of ten feet, so as to project its open end into the current. The sides were closed in and the open end covered with a grating having a three-eighths inch mesh.

Upon the 6th of June, in company with Dr. R. Parsons, Dr. Ezra Hunt, the Secretary of the State Board of Health, visited the village of Smithville, which is located on Rancocas Creek, about three miles above the crib of the pumping-station at Mt. Holly, and found that there had been several cases of typhoid fever. The most important of these occurred in a large boarding-house, located not more



than one hundred feet from the side of the creek, and emptying therein by three drains. Early in May there had been two men, who subsequently recovered, ill with typhoid, and at the time of Dr. Hunt's visit, Mrs. A. L. was convalescent of the same disease. The dejecta of all three had passed, without disinfection, directly through the drains into the creek.

In addition to these drains, the cesspools are located on the sloping grounds of the village, and their contents eventually wash down and are carried into the creek. Dr. Brown, the sanitary inspector of the township, reported that these cesspools had been disinfected with copperas and chloride of lime in the latter part of May, and the origin of the epidemic is more directly traceable to the discharges from the drains above alluded to.

From the 20th to the 27th of May there were heavy rains, and the epidemic broke out shortly afterward in Mt. Holly.

As will be seen by the accompanying map, the water was not pumped first through the ascending main into the reservoir, but at the time of the epidemic much of it passed directly into the distributing system.

The most striking collection of cases (indicated on the map by x), were those at contiguous houses supplied from a "dead-end" on Pine street.

At the time of my second visit to Mt. Holly, July 23d, Drs. Parsons, Parry, Barrington, Brown, and Melcher gave me the following list and details of cases up to that time:

On Pine Street, Case L. P. began June 20th; still very ill. W. W. began June 25th; disease still progressing. Cases D. S. and M. G.; the last, however, being properly gastro-enteritis.

On Ridgway Street there was another dead-end connected with a school. Four boys attending this school, though living in different parts of the town, were attacked with typhoid about the 2d of June, of whom one died.

On Mill Street there had been four cases, beginning from the 2d to the 5th of June, of which one proved fatal, on the 20th of June, and the others had recovered or were convalescent.

On Washington Street, M. C., after an illness of two and a half weeks, had died of typhoid. On Main Street, L. H. was attacked June 18th and died July 10th. On Church Street, L. D. was attacked June 6th. The record also includes other cases, beginning from the 1st to the 18th of June.

I am also in receipt of a number of valuable communications from Drs. Parry, Parsons, and Barrington, from which I shall take the liberty to quote.

Dr. Parry writes, July 20th: "I would call your attention to the part of the creek where the water was taken from, a sort of *cul de sac*, where the water never has a running current on the side or near the edge where the box is. It is virtually standing water while the mill is not running below, and hence a place where the sediment from up the stream must settle to. Add to this much mud in the crib and pump-well, a dirty reservoir to pump into, and polluted water, as this was shown to be, and we find it followed by the following cases, occurring about seven to nine days after a rain had commenced. . . . . All of these cases have taken more or less hydrant water, some using it entirely, some at the places of work, and some occasionally. Two-thirds of these cases have occurred, I think, from the 30th of May to the 10th of June. . . . In many cases there has been a very rapid pulse, with comparatively low temperature, some lower even than the above record. But in one case that proved fatal, the axillary temperature attained 106°, and registered above 104° daily for a week preceding her death, with pulse from 130 to 140 during the same time. . . . We have had, occurring at the same time as cases quoted, children afflicted with gastro-intestinal fever, not typhoid, but temperature, pulse, and duration of the disease the same as well-marked typhoid cases, with many cases of mild continued fever, and have had no malarial trouble in surround-

ing malarial districts, and these cases were not controlled by quinine, but all have had much gastric trouble, vomiting, etc. . . . . We have had in the last week or two, in addition to a few cases of typhoid fever, a dysenteric trouble with, in some instances, violent gastric disturbance."

Under the same date, July 20th, Dr. Parsons writes: "I have had under my care three cases of typhoid fever. These cases had the rose-colored spots, bleeding from the bowels and nose, and more or less stupor; temperature 102° to 104°, with a morning and evening variation of about 1°. Two of the cases used water supplied from the creek by the water company, the other used well water only when at home. I have also seen about twelve cases of fever which were remittent, but differing somewhat from the usual form by having some typhoid symptoms, and quinine seems to make no impression on them. This outbreak of fever occurred in various parts of the town almost simultaneously."

On the 23d of July I visited, in company with Dr. R. E. Barrington, the case L. P., and found it presented the well-known characters of typhoid fever. I took some of the greenish stools, and made some of the primary, secondary, and tertiary gelatine-peptone cultures from them. The predominant form was a nearly straight bacillus 0.006 of a millimetre in length, and 0.0002 of a millimetre in breadth, which in the third culture was obtained in a pure condition. The stools contained an innumerable quantity of these bacilli.

Although the data above narrated rendered the fact of this epidemic in Mt. Holly being rightly attributable to typhoid well nigh certain, yet I did not feel satisfied without the confirmatory evidence from autopsy. At my request, Drs. Parsons and Barrington kindly performed an autopsy, and under date of Aug. 8, the former writes: "You will receive by mail a section of the small intestine, and some fecal matter, taken from a patient six and a half years old. I made a post-mortem examination of this case on Saturday, August 6th. While the patient was very young, he had all the symptoms of typhoid, excepting the "spots," and died rather suddenly from intestinal hemorrhage. On examination, I found the ileum ulcerated in about a dozen places. This being the only autopsy during the epidemic, it establishes the fact that some of the cases are *true* typhoid."

Under date of August 15th, Dr. Parsons again writes: "The case from which the specimen was taken that I sent to you, was a child six and a half years old. He had continuous high temperature that varied from 102° to 104°, some slight diarrhœa occasionally, but no other abdominal symptoms, no delirium, very slight stupor, no epistaxis, loss of strength not marked. He improved very rapidly a few days before his death, so much so that the nurse moved him into another room. This brought on hemorrhage of the bowels from which he died in about eighteen hours, after a sickness of three weeks."

"At the autopsy I found in the lower part of the small intestine about twelve or fifteen ulcers, varying in size from a pin head to one inch in length. This ulcer had nearly perforated the intestine. There were several blood-clots and some fecal matter in the bowels."

I was deeply interested to discover what additional evidence of typhoid fever would be obtained by microscopic study of the material submitted by Drs. Parsons and Barrington. My attention was particularly directed to the sides of one of these typhoid ulcers in the small intestine, and after removing small portions of the adherent matter, I made a number of stainings with methyl violet. They all yielded me great numbers of micrococci, the micrococcus being mostly single, but many in short chains. According to Eberth, a certain bacillus with rounded ends is peculiar to typhoid, and Koch is of the same opinion, regarding this bacillus of Eberth as being the only one which has a specific relation to the disease. I find it likewise stated that when these bacilli of Eberth are present in great numbers they have the appearance of masses of micrococci, but when isolated from these masses they are recognized as short thick rods having rounded ends. Unfortunately, having no authentic specimen of Eberth's bacillus with which to compare my slides, I am unable to state whether or no what I took to be micrococci, were really Eberth's bacillus. They possessed one property which is the same as that of Eberth's bacillus, in that they were not so deeply stained by methyl violet as another bacillus present in the superficial layers of the intestine and in the fecal matter. This bacillus was a long, straight, thin rod which stained deeply, and which I took to be the bacillus typhosus of Klebs.

Having established by clinical and pathological evidence the fact that the disease in Mt. Holly was typhoid fever, it becomes of great interest to ascertain the character of the water which, whatever might have been the other surroundings of the typhoid cases, was the one food they took in common.

It would have been of great importance to tak the samples of water during the period when the typhoid was incubating, say at the time when Drs. Hunt and Parsons visited Smithville on the 6th of June. But the opportunity of discovering whether the specific bacillus, which was found in the intestine of the typhoid cases, was also present in the water-supply during the period of incubation was lost.

The samples which I collected were taken on the 9th of July, at the time when much typhoid was prevailing in Mt. Holly, but probably subsequent to the inception of the disease in most or all of these typhoid cases.

I have made both chemical and biological analyses of the samples collected, the water on which the latter tests were made being obtained in sterilized flasks. Sample I. was from the Rancocas Creek above the village of Smithville, some 200 yards above the point where the three drains from the large boarding house entered. Sample II. was from the water as it entered the crib of the pumping station at Mt. Holly. Between the two points on both sides of the creek are three miles of meadow and marsh lands, the soakage of which enters the stream. Both

samples were dark yellow (No. 5 on my scale of water colors), of peaty taste and smell, and the sample II. was turbid with a great quantity of floating filaments of decayed vegetation. They contained:

I.—Above Smithville.

	Parts per 100,000.	Grains per Gallon
Free ammonia	0.002	0.0012.
Albuminoid ammonia	0.015	0.0087.
Oxygen required to oxidize organic matters	1.27	0.70.
Chlorine	0.45	0 26.
Hardness	3.10	1.80.
Total solids	6.30	3.67.
Mineral matters	3.30	1.92.
Organic and volatile matters	3.00	1.75.

II.—Pumping Station at Mt. Holly.

	Parts per 100,000.	Grains per Gallon.
Free ammonia	0.006	0.0035.
Albuminoid ammonia	0.0155	0.009.
Oxygen required to oxidize organic matters	1.10	0.64.
Chlorine	0.55	0.32.
Hardness	2.20	1.80.
Total solids	6.20	3.60.
Mineral matters	3.30	1.92.
Organic and volatile matters	2.90	1.68.

CHEMICAL DATA.

These data are conclusive as to the pollution of the creek waters by sewage at points below where sample No. I. was taken, which was *above Smithville.* It should be borne in mind that the analyses were both made on the waters after they had been allowed to stand until the suspended matters had settled, and the clear water pipetted off. The sample from above Smithville deposited very little, that from Mt. Holly much floating matter, this matter being evidently of vegetable origin. The clear waters thus obtained were both of the same deep tint of yellow color. Now it is very important to note that the gross amount of organic matters in sample I. was greater than in II. Moreover, the amount of oxygen required to oxidize the organic matters, and therefore the organic matters themselves, was greater in the Smithville than in the Mt. Holly sample. But that portion of the organic matters which was nitrogenous, was greater in the sample from Mt. Holly, the free ammonia and the albuminoid ammonia both being in excess. The free ammonia was three times more in the samples from the pumping-station. This fact, taken in connection with the corresponding increase in the amount of chlorine, is conclusive as to the entrance of sewage into the creek at or below Smithville.

Whenever the amount of peaty matter in solution is great, the amount of oxygen required to effect its oxidation is correspondingly high. This peaty matter is oxidized by contact with light and air both in reservoirs and in flowing streams, so that a stream which at its origin in cedar swamps is dark yellow in color, becomes nearly or quite colorless after flowing a number of miles. I do not think there is any ground for connecting the typhoid epidemic with this large amount of extractive peaty matter in the water supply. It was always present, and I have no reason for supposing there was any more in solution this June and July than at previous seasons. In fact the citizens of a town using cedar-swamp colored water ordinarily become advocates both of its taste and qualities. They are habituated to it, and it does not originate in them disorders of the stomach and bowels. When strangers come to the town, who are not accustomed to drinking water containing peaty matters in solution, and who do experience intestinal derangements attended with more or less diarrhœa, the citizens of the town are puzzled and indignant that these ailments should be connected with what to them is an entirely wholesome and satisfactory quality of water.

But what I desire to insist upon here is, that the typhoid epidemic was not due to the peaty vegetable matter, but to the animal matter in the nature of sewage which found its way into the stream, and whose presence was made evident by the chemical data. Fortunately we are not shut up to the consideration of these chemical data only in the present instance, but I am able to adduce also the results of the biological analyses, affording, as they do, overwhelming evidence of the fact of contamination by decomposable putrescent animal matters.

BIOLOGICAL DATA.

I prepared gelatine-peptone cultures of samples I. and II., or rather those portions of these samples which were collected at the same time, but in sterilized flasks.

A. The plate culture of the Smithville sample yielded per cubic centimetre *50 colonies of bacteria.*

B. The plate culture of the sample from the pumping station yielded *8100 colonies of bacteria.*

Another plate culture was made by dipping a sterilized platinum wire in culture A and streaking with it a plate flowed with sterilized gelatine peptone. This streaked plate yielded 15 colonies, all of which proved to be Bacterium lineola, excepting one, which was Bacterium termo.

Another plate was similarly prepared from culture B. It yielded many colonies, which, on examination, proved to consist of Bacterium lineola.

Now it will be noted that I did not find in any of these cultures the bacillus of Eberth, or the bacillus of Klebs, or the micrococci of Chantemesse and Widal, which have been held by competent bacteriologists to be the specific pathogenic microörganisms of typhoid infection. What I did find were two very common species of the bacteria which flourish vigorously wherever putrefaction is going on. They are the so-called *scavenger* bacteria, whose beneficent function in the economy of nature is to prey upon the putrescent matter. They are the sharks of the biological kingdom. They live upon offal and sewage, and by transferring oxygen to such sewage through the medium of their vital processes, they break up and destroy noxious matter and convert it into simpler and innocuous substances.

Of these scavenger bacteria there were 160 times more in the sample at the pumping station than in that from above Smithville, and I know of no other

explanation of this fact than the presence of the sewage in the Mt. Holly sample, upon which they could feed and multiply.

EFFECT OF PRECIPITATION.

In connection with these bacteria I made the following novel experiment, and obtained therefrom a surprising result, and one of much sanitary importance. The practice of adding a minute quantity of alum to water in order to clarify it, is an old and very familiar one. But while it is successful in carrying down the dirt and coloring matters, I did not know what influence it would exert upon the bacteria. I therefore added alum, in the proportion of half a grain to the gallon, to the sample taken at the pumping-station. On standing, the peaty matter was entirely precipitated in reddish-yellow flakes, and the water above became perfectly colorless and clear. On pipetting off some of this supernatant water, I found that instead of containing 8100 colonies of bacteria per cubic centimetre, as it did before precipitation with alum, it contained *only 80 colonies*. They were all the Bacterium lineola.

On filtering some of this supernatant water through a double thickness of sterilized filter-paper into a sterilized tube, I found no bacteria in the filtered water. In other words, the water had been rendered by the addition of an amount of alum so minute as to be inappreciable to taste and almost to chemical tests, *as sterile as if it had been subject to prolonged boiling*. I need not enlarge upon this demonstration, which, so far as I am aware, has not been hitherto made, of the possibility of completely removing all microbes from potable waters by the use of very minute amounts of alum followed by filtration. In case there is no organic matter in the nature of peat with which the alumina may unite, and, acting like a mordant in the operation of dyeing, may be precipitated as a lake, the alumina alone may be precipitated by the addition of lime or soda to alkaline reaction, and so carry down the bacteria. Or, in such case, a minute amount of a soluble iron salt like ferric chloride may be first added, and then after precipitation with soda or lime, removed together with the bacteria by filtration.

RECOMMENDATIONS.

The above results, and those obtained by personal inspection of the surroundings of Mount Holly, suggest three modes of obviating the danger of similar epidemics in the future.

I. Finding some point upon Rancocas Creek demonstrably free from sewage contamination. At present I know of none.

II. Finding a water-bearing stratum in the vicinity from which, by means of driven wells, an ample supply of pure soft water, which has been submitted to a natural process of filtration, can be obtained. This may be the most economical method, and some test-wells could readily determine.

III. Previous purification of the water by means of aëration under pressure followed by filtration. In addition to the purification effected by oxidation, a minute amount of alum might be employed, but it is probable that this would not be necessary. By laboratory tests I have already determined that this particular water could thus be rendered pure, colorless, and palatable to all persons. The results of these tests are also in accord with the practical operation of purification and aëration plants already established to treat, on a large scale, water supplies of similar character as that of Mount Holly.

STEVENS INSTITUTE OF TECHNOLOGY, HOBOKEN, N. J.

PRELIMINARY NOTE ON THE MEDICINAL USE OF THYMOL.

BY FREDERICK P. HENRY, M.D.,
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FOLLOWING the suggestion of Martini, in the *Annali Universali di Medicina e Chirurgia* for February, 1887, I have recently prescribed thymol in a number of cases of intestinal diseases, catarrhs, acute and chronic, and typhoid fever, with the result of convincing me that it is a valuable adjuvant to our treatment of such affections. I do not attach any particular significance to the fact that all the cases of typhoid fever, ten in number, to which I have thus far administered the drug, recovered; but my conviction that the course of the disease was most favorably modified by the treatment was shared by the resident physicians, by practitioners who visited the hospital for the purpose of seeing the cases, and last, and perhaps not least, by experienced nurses.

The benign course pursued by these cases was especially evident when contrasted with that of an equal number treated without thymol during the first half of my hospital term. The favorable effect of the drug was evinced by a steady descent of the temperature, by a gradual diminution in the daily number of stools, by the absence of mental excitement, and, most conspicuously, by the clean, moist tongue presented in every instance.

I have full notes and temperature charts of these cases, prepared by the resident physicians, Drs. H. C. Deaver and N. P. Grimm, but it is unnecessary to give the clinical histories, since they are identical with those of well-marked, but comparatively mild, cases of typhoid. One case caused some anxiety for a few days after his admission, on account of the presence of decided tympany and general abdominal tenderness, but these ominous signs gradually disappeared.

I have also administered thymol, with good results, to several cases of intestinal catarrh, of which one is worthy of some detailed account:

Mary S., æt. thirty-six, married, was admitted to the Episcopal Hospital on May 14, 1887. She was pale, thin, and anæmic. Seven years ago, after removing to Philadelphia from the country, she had an attack of "diarrhœa" (dysentery?), with from fifteen to twenty stools a day, in spite of treatment. Defecation was painful, with marked tenesmus, and the dejecta were thin and streaked with bloody mucus. Gradually the number of passages was reduced to from five to six per diem, and, for nearly seven years, notwithstanding treatment by several physi-

cians, this has been the daily average. Soon after admission she was given thymol gr. x., ter in die, and the next day the number of stools was reduced to three. A week later, she had a well-formed stool every second day, and expressed herself as feeling better than at any time during the past seven years. On July 1, when my term of service expired, she was well, so far as the diarrhœa was concerned, but was still somewhat anæmic.

The medicinal use of thymol is based upon its well-known antiseptic properties, and its action in the cases under consideration was favored by its great insolubility, which enables it to reach the intestine, mingle with its contents, and neutralize the toxic ptomaines that are formed in great quantity in catarrhs of the gastro-intestinal tract. In the opinion of many authorities, it is to the absorption of large quantities of these toxic products of fermentation and putrefaction that the so-called typhoid symptoms are largely due. These opinions do not rest solely upon theory, for it is found that, during the administration of thymol, phenol, which is one of the most constant products of intestinal putrefaction, and is almost entirely eliminated with the urine, is no longer found in that excretion.

I have always prescribed the thymol in pill, of which the best excipient is medicinal soap, and, so far, have not given more than thirty grains in twenty-four hours—two two and a half grain pills every six hours. This is a small dose, but I have seen no reason to increase it. This may be done, however, with perfect safety, and, perhaps, with still better results. It has been administered, with brilliant results, by Bozzolo, in cases of anchylostomiasis, in doses of from ten to twelve grammes (two and a half to three drachms) per diem.

The only case in which I found the drug to produce any unpleasant effect—slight digestive disturbance—was that of a woman with advanced phthisis, chronic diarrhœa, and who was, besides, the host of a tapeworm. Thymol has been found to be an excellent tænifuge by several Italian observers, and it was for this purpose that I prescribed it in the case last mentioned. The woman had voided no fragments of the worm for two weeks, and it was a question whether the parasite had been entirely expelled. Although but a few doses of the thymol were tolerated, they were quickly followed by the expulsion of several fragments of the worm.

Martini, whose experience with thymol has been large, has only found it to give rise to unpleasant symptoms—delirium and stupor—in one case, that of a girl, æt. fourteen, to whom thirty grains had been given in the course of two hours; the symptoms were transient, the treatment was resumed, and the case, one of typhoid fever, recovered without further mishap.

My colleague, Dr. D. J. Milton Miller, has continued the use of thymol in the medical wards of the Episcopal Hospital since he took charge of them on July 1, and, in reply to a recent inquiry of mine, writes as follows:

"Generally speaking, my success with thymol, in typhoid fever, has been most satisfactory. The cases do seem to run a more favorable course than usual, as shown by lower temperature-range, less diarrhœa, the absence of complications, and even a shorter duration of the fever."

In conclusion, it is my belief that the success obtained with thymol in the wards of the Episcopal Hospital renders the publication of this "preliminary note" not only justified, but imperative.

SIMPLIFICATION OF THE TECHNIQUE OF ANTISEPTIC MIDWIFERY IN HOSPITAL PRACTICE.

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ANTISEPSIS in obstetrics may seem a subject already hackneyed, about which little more remained to be said, but even if the practice were universally adopted in the lying-in hospitals of this country, the technique, at least of antiseptic midwifery, might still be considered a matter worthy of further discussion.

In the most important contributions to the study of antiseptic midwifery in hospital practice that have recently appeared in this country, there is advocated a rather complicated system of preventive measures against puerperal sepsis, which might, perhaps, not always be easy of application. It is the object of this paper, on the other hand, to describe a more simple, and yet an efficacious plan, that is in use in the Maternity Hospital, and to dwell briefly upon the efforts that have been made to bring the general hygienic condition of the institution to as high a level as possible.

In common with many other hospitals where antisepsis is practised, bichloride of mercury is the disinfectant relied upon; its advantages over the biniodide of mercury, carbolic acid, thymol, and other agents, that have been recommended from time to time, have been so often set forth that it is scarcely worth while more than to mention its solubility, its cheapness, and, more than all, its destructive action, even in weak solution, upon the lowest forms of life when brought in contact with them, being excelled, perhaps, in this last attribute only by the biniodide of mercury. The solution of corrosive sublimate is prepared for use in the hospital by dissolving 128 grains of the salt in a quart of water; this solution is kept in the wards in dark-colored bottles until required for use, when an ounce, added to a pint or quart of water, makes a solution a very little stronger, respectively, than 1 : 2000 or 1 : 4000.

As soon as a woman falls in labor she is cleansed by a full bath, and is then taken to the ward, where she will be delivered, and will remain during the puerperium. As labor advances the patient is placed upon a bed, the mattress of which is completely covered by a gum cloth; upon this rests a clean undersheet, and over this again a rubber sheet, that well overlaps the mattress, and is laced down to the iron framework of the bed; upon this the woman lies, her buttocks resting on a piece of old blanket, some three feet square, that has been washed, soaked in a 1 : 1000 sublimate solution and dried.

As soon as the placenta is expelled, the blanket, soiled by the discharges of labor, is removed, an

earthenware bedpan is placed under the hips, and the patient then receives a vaginal douching of a sublimate solution, 1 : 4000, which is the only vaginal injection given during the whole course of the treatment in an ordinary case. The solution for the douche is held in a glass jar, supported, at a height of about six and a half feet, upon a wooden upright, and from the jar descends a rubber tube, provided near its lower end with a stopcock; to this is attached the vaginal tube, which is of glass, about a foot in length, suitably curved, perforated on all sides along that portion of it which remains within the vagina, when the tube is introduced as far as the cervix, but closed at its distal end, so that it is the vagina alone that is disinfected, an important precaution, we believe, against the possibility of mercurial poisoning from the entrance, retention, and subsequent absorption of the solution within the uterine cavity. These tubes, when not in use, are kept constantly submerged in a jar, filled with sublimate solution, 1 : 2000. Glass tubes, somewhat similar, although open, of course, only at both ends, and kept clean in a like manner, are used for giving rectal injections, which are administered with as much cleanliness as possible to guard against a possible infection from this source.[1]

The hands of all attendants, before coming in contact with the patient's genitals or buttocks, during labor, or in the puerperal state, are scrubbed with a nail-brush, in a sublimate solution, 1 : 1000. All instruments are cleaned in a carbolic acid solution, 1 : 20.

After the single vaginal injection has been given, the perineum, if lacerated, is repaired by a continuous catgut suture, and then the upper of the two gum sheets that have been described is removed, exposing the clean linen sheet underneath; under the woman's buttocks is now slipped a gum cloth, a foot longer than the width of the bed, and three feet wide, upon which rests a piece of blanket, like that which had been removed after labor, and upon this again is placed a piece of canton flannel, disinfected in a sublimate solution, 1 : 1000, and dried, as it presents a more comfortable surface to the patient's skin than would a piece of rough blanket. Canton flannel, blanket, and rubber cloths are removed three times a day, as long as the lochial discharge continues, and, at the same time, the patient's external genitals are wiped clean with a fresh piece of baked cotton dipped in sublimate solution, 1 : 2000. This practice constitutes a system of antiseptic midwifery that must commend itself for its simplicity, while its efficiency is attested by the adoption of a plan somewhat similar, although sometimes even more simple, in the maternity hospitals of Berlin, Munich, Buda-Pesth,[2] and in other equally well-known institutions. It will be seen that this system is based upon the belief that a woman during labor, or afterward, in the puerperium, is infected, if at all, by actual contact with the disease germs that are carried to her, and deposited upon an absorbing surface by the hands of the attendants or by the instruments that may be employed, and that she has little to fear from the atmosphere of a ward which is governed by proper hygienic rules, as long as the lochial discharges are frequently removed from the external genitals, where, exposed to the air, they might putrefy. Although impressed with the importance of non-interference with the parturient or puerperal female, as regards the use of disinfectants, should symptoms arise indicating infection along the parturient tract or the decomposition of retained membranes or fragments of placenta, an energetic course of disinfection is pursued. Intrauterine douches of sublimate solution, as strong, occasionally, as 1 : 1000, are given, and when the presence of decomposing material is suspected, the curette is employed. For the administration of a uterine injection, a Bozeman's canula is used, and to guard against mercurial poisoning, as the sublimate solution is about exhausted a quart or more of water that has boiled for two hours is poured into the glass jar of the fountain syringe, and flowing thence through the uterine cavity, it washes away any residue of the mercurial solution that might be retained and absorbed.

And now a word as to the efforts that have been made to surround each patient with as large a quantity as possible of fresh, uncontaminated air.

There are four wards in use in the hospital, with an average capacity each of 5750 cubic feet (the largest 6411, the smallest 5077), which allows each patient 1916 cubic feet of space, for there are only three patients at one time in a confinement ward, an extravagance of space that is not begrudged so long as it results in an economy of life. After three women have been confined in a ward, the third and last patient, as soon as she is able to leave her bed, is moved to the convalescent ward, when the doors of the confinement ward are closed, the windows thrown open, and the floors and walls well scrubbed, and no patients are admitted again until the other wards have been used in turn. The blankets that have been in use as part of the bed-clothing are taken with the patients to the convalescent ward, but, before being used again in the confinement wards, they are thoroughly washed and disinfected in sublimate solution. The bed sheets of the puerperal women are changed three times a week. The beds themselves are of iron, with a wire mattress upon which rests a corn-husk mattress; this latter is used for ten successive cases, and, although it has been well protected by a rubber sheet, is then destroyed, and replaced by a new one. After a case of septic infection the mattress has always been destroyed at once.

In order to secure sufficient ventilation in winter, —for in summer, with the doors and windows open, this problem presents few difficulties—the heated air that keeps the temperature of the wards as near as may be to 70°, is brought from without the house in large conduits leading to the furnaces, whence it goes directly to the wards above, so that none of the cellar atmosphere is forced up through the rest of the house, although the cellar itself has a water-tight cement floor, and is kept scrupulously clean. There enter each ward, on an average, 5000 cubic feet of

[1] Winckel: Path. u. Therap. des Wochenbettes, pp. 252–255. Hirst: specimen exhibited before the Philadelphia Obstetrical Society, April 7, 1887.

[2] Szabó: Archiv f. Gyn., B. xxx. H. 1.

this heated air every hour, while through the open fireplace—which is not used for heating purposes—there passes up the chimney, every hour, 6000 cubic feet of air, the extra 1000 feet entering the ward through chinks in the windows and doors, so that the atmosphere of the whole room is changed at least once every hour. The fireplace is provided with a sliding shutter to regulate the draught, which is sometimes excessive; while to increase the draught, should that be desired, a gas-jet is let into a small but deep alcove in the wall over the mantel-piece, connecting above directly with the chimney, and shut off from the room by a small glass door. The light from this burner is used as the night-lamp, and during the day, should one of the patients have an offensive evacuation of the bowels, by lighting the gas-jet the ward is freed from odor in a very few minutes.

A simple experiment showed what an effective ventilator this gas-jet can be: on a quiet summer day, with little air stirring outside, and no air forced into the room through the heaters, with the windows and doors closed, there passed up the chimney in an hour, 940 cubic feet of air. Under the same conditions, with the gas lighted, 1476 cubic feet of air passed up the chimney in an hour, an increase of more than fifty per cent.

It is customary in an article of this kind to support the claim for the efficacy of a method of treatment by showing its effect in reducing the mortality and morbidity. In this respect we have every reason to be satisfied, for although the clinic is not a very large one, and we are unable to present an unexampled number of consecutive confinements without a death, yet it must be remembered that the hospital was designed for the reception of a peculiar class of cases, unmarried girls, illegitimately pregnant for the first time, cases that constitute the severest test possible for any system. The patients come to us depressed in mind and body, having endeavored to conceal their condition by tight lacing; having, as a rule, attempted to bring on an abortion; often shunned by or shunning their family and friends, and as ill fit to resist the inroads of puerperal disease, should infection once occur, as any woman could well be. Joined to the liability of all primiparæ to infection, and the inability of this particular class of primiparæ to resist an attack of puerperal fever, there are the other dangers associated with primiparity: the liability to renal troubles and eclampsia; to lacerations of the vagina and perineum; to retarded labors demanding instrumental interference, especially in these patients of the Maternity Hospital, for the most part factory and shop girls, among whom there is a large proportion of contracted pelves.

In spite of all these disadvantages, however, from May 1, 1885, to May 1, 1887, there was only 1 death out of 220 confinements, a death-rate of 0.45 per cent. This death was due to sepsis, but it occurred before the thorough adoption of the system of antisepsis now in use. Since the last fatal case there have been 218 consecutive confinements without a death. In regard to the morbidity during the past two years, accepting 100.5° as the physiological limit to a rise of temperature after confinement, 24.1 per cent. of the patients have had fever, which lasted, on an average, two days. In 9 per cent. of the cases the temperature did not exceed 101.5°.

ELECTRIC CAUTERIZATION AND EVULSION OF MORBID GROWTHS ON THE VOCAL BANDS.

A PRACTICAL NOTE.

BY J. SOLIS COHEN, M.D.,
OF PHILADELPHIA.

THE interest at present evinced in the treatment of intralaryngeal neoplasms prompts me to present illustrations of two instruments successfully used by me in some difficult cases.

I. When a growth, located on the edge or lower surface of a vocal band, is to be attacked by the electric cautery, the platinum blade should be so guarded as to avoid injury to the sound side in the spasm likely to attend the cauterization. To accomplish this object the flattened platinum blade is covered upon one side with a thin layer of asbestos upon which a thin plate of ivory is laid, the whole being firmly secured by the insulating material of the conducting wires.

FIG. 1.

Protected electric cautery for lateral cauterization of the interior of the larynx, and especially of its morbid tissues at the edges of the vocal bands. (Actual size, lateral and front view.)

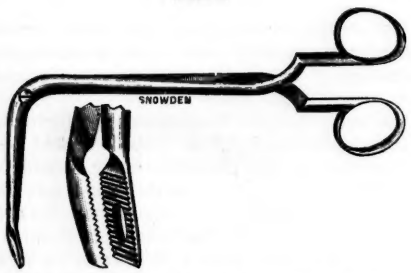
For similar lateral cauterization in the mouth, nose, or other passages, similar insulation of the blade often enables the operator to dispense with special shields for protection of the sound tissues.

It may be remarked here that an essential point in the construction of intranasal and intralaryngeal electric cauteries and the like, is not comprehended by the profession in general. This point is that the conducting copper wires of the electrode should be very thick. This confines the greater resistance to the current in the platinum terminal; and thus the body of the instrument does not become heated as it does when composed of thin wires. Only a certain amount of heat can be generated in a given instance; and this is wanted where it will be efficacious, and that is in the incandescent terminal, and not in the body of the instrument.

Wires too thick to pass a contracted nasal meatus can be flattened laterally, so as to present a smaller transverse section horizontally than vertically, without diminishing the bulk of the conductors. The shape of the conductor is unimportant, its bulk is all important.

II. A minute neoplasm seated upon the upper surface of a vocal band cannot readily be grasped with forceps having the ordinary olive-shaped blade. If the terminal of the blade is squared, however, as in Fig. 2, so many points of contact with the surface

FIG. 2.



Modification of Mackenzie's forceps, especially adapted to the evulsion of small neoplasms from the superior surfaces of the vocal bands. (Main figure two-fifths size, jaws actual size.)

of the vocal band are secured that a very small growth can be caught and torn off with the blades of the instrument bent a little forward as shown in the illustration. I have removed growths no larger than hemp seeds, as well as growths much larger, situated upon the anterior portions of the vocal band. This instrument has been particularly valuable to me in the removal of cysts, and in ripping off thickened tissues from the vocal bands of vocalists. The blades of the forceps are applied separated to the surface of the vocal bands, and are maintained in contact with that surface during their closure, so that any prominence in their way becomes seized.

HOSPITAL NOTES.

PHILADELPHIA HOSPITAL.

AN ELBOW PRESENTATION DELIVERED BY SPONTANEOUS EVOLUTION.

(Reported by W. A. N. DORLAND, M.D., Resident Obstetrician.)

OWING to the advantages of operative obstetrics, the practitioner of to-day rarely enjoys the opportunity of witnessing the delivery of a transverse presentation entirely through the exertion of the maternal powers. Recently, however, the writer, being placed under peculiar circumstances, was present at the delivery of an elbow presentation by the process of *spontaneous evolution*. The history of the case was as follows:

C. G., aged twenty-six, II para, a native of Germany, was admitted to the waiting-room of the obstetrical department on June 13th. Fifteen days before admission, while carrying a roll of carpet up a flight of stairs, she fell eleven steps, alighting upon her face and striking her abdomen heavily, the carpet falling upon her. Up to that time the fœtal movements had been frequently noticed by her, but since then they had been entirely absent.

On June 20th, at 3 P. M., labor pains came on, and at 10 P. M. she was sent to the maternity wards. Auscultation revealed no fœtal heart sounds. On palpation a transverse position was determined. Upon making a vaginal examination the pelvis was found to be roomy, the os well dilated, the membranes ruptured, and the left elbow presenting. The ribs of the fœtus could be easily distinguished, as could also the lower angle of the scapula.

The rules of the institution not permitting the resident to perform version, the visiting obstetrician was immediately sent for.

The pains now becoming more frequent and quite severe, the presenting part was jammed tightly down, the arm and hand protruding from the vulva. These were soon followed by the shoulder and then the breech, propelled by violent pains, necessitating the administration of ether; and at 11.15 P. M. a macerated, full-term, male fœtus, weighing six pounds two ounces, was born, ten minutes after the arrival of the visiting obstetrician. The placenta was delivered simultaneously with the fœtus, the cord being twined three times around the neck. The duration of the labor was eight hours and a quarter, of which seven hours were employed in the dilatation of the os. There was no tear of the perineum, and no tendency to post-partum hemorrhage. The mother made a rapid and satisfactory recovery.

Beyond doubt, we think, the macerated condition of the fœtus and the roomy pelvis were important factors in aiding the propulsive efforts of the uterus.

MEDICAL PROGRESS.

SALOL IN THE TREATMENT OF INTESTINAL DISORDERS IN CHILDREN.—DR. GOELET, of New York, has had excellent results with salol and ice-water enemata, in intestinal disorders in children; he writes as follows:

While the adult dose is ten grains, the dose is much larger in proportion with children, and varies very considerably with the age. For a child six months old or under the dose is half a grain every two hours. From seven to ten months old the dose may be from one half to three quarters to one grain, according to the severity of the symptoms and the strength of the child. A child one year old may be given from a grain to a grain and a half, according to the severity of the symptoms. A child fifteen to eighteen months old may take a grain and a half to two grains. At the age of two years the dose would be two grains. For three years of age the dose would still be two grains to two grains and a half. Children of four years would require only two and a half to three grains, and those of five to six years would require only three or three and a half grains. And from this age to ten it is seldom necessary to give more than five grains. It is always given to commence with every two hours, and as the symptoms are relieved the interval is lengthened to three or four hours. As in the first case, I sometimes give it three or four times a day for twenty-four or forty-eight hours after the subsidence of the trouble.

The application of salol in bowel complaints is very

extensive. I have used it in all with the same pronounced success. In typhoid fever, every three hours, there is nothing better. While I cannot say that it shortens the attack, it relieves the excessively disagreeable odor of the feces and the tenesmus and flatulence produced by the accumulation of wind in the colon.

Diarrhœa and dysentery of children in summer are more promptly relieved by salol than anything else. Let me here outline a general course of treatment for these cases. To begin with, stop all food for twenty-four hours. If the little patient is thirsty, use a decoction of salep cold. This is made as follows: A salt-spoonful of powdered salep is rubbed into a paste in a cup with a tablespoonful of *cold* water and a pint of boiling water added slowly, stirring it all the while. This is set on ice, and, when *cold*, it may be given to the child almost *ad libitum*, but in small quantities at a time. Give the salol in appropriate doses every two hours until there is marked improvement in the bowels, and apply something warm to the abdomen. In the majority of cases the little patient will be ready for food in twenty-four hours. This should then be given in small quantities at first, and it must be of the proper kind.—*New York Medical Journal*, August 6, 1887.

ATROPINE FOR SEA-SICKNESS.—REBATEL has obtained good results from the hypodermatic injection of atropine in small doses of a solution of $\frac{1}{50}$ of a grain to ʒ 2½ of water, repeated every 7 or 8 hours, until mild physiological effects are produced. The addition of a little morphia will often cause sleep in those who suffer from insomnia.—*L'Abeille Médicale*, July 18, 1887.

COLLODION FOR GOUTY JOINTS.—MONIN advises the following:

Collodion. flex. . . .	āā 15 parts.
Ether. sulphur. . . .	
Acid. salicylic.	4 parts.
Morph. hydrochlorat. . . .	1 part.

For application externally about painful joints.
—*L'Union Médicale*, July 21, 1887.

PAPAIN AND PEPSINE.—FINKLER, of Bonn, thus compares the two substances on which he has made comparative experiments:

It is impossible to create in the stomach and intestines such amount of liquid as would be favorable to the effect of pepsine; the conditions, therefore, are very much in favor of papain.

Pepsine acts in the stomach but not in the intestines, as in the latter the reaction is neutral or alkaline. Papain has little effect in the stomach, as the reaction there is acid; when, however, the stomach is neutral or alkaline papain will peptonize, while pepsin will be useless. The degree of acid reaction in the stomach varies greatly, especially in the case of a stomach out of order, in which case the reaction can be so highly acid or alkaline that pepsine would be of no value at all. In the treatment of stomach catarrhs we will, moreover, find that as a general rule the contents of the viscus have been rendered artificially neutral or alkaline by the administration of remedies, so that in these cases pepsine will have absolutely no effect. Papain, on the contrary, will act energetically.

In the case o pepsine this is necessarily very short, as the action ceases when the food enters the alkaline reaction of the intestines. In the case of papain, which can act well in alkaline reaction, the time is practically unlimited, as it continues acting on the food during the whole time it remains in the body.

For all these reasons the conditions for the effect in the human body are far more in favor of papain than of pepsine, and especially as under existing circumstances (high degree of concentration) papain has been shown to act much more energetically; it is only too clear that the preference should be given to papain as a digestive ferment for the treatment of dyspepsia. Besides for dyspepsia, the papain is of great importance in the treatment of diphtheria. Its effective power consists in the circumstance that no free acid need be present in the application, and further, that the moisture of the diphtheritic membranes is quite sufficient to allow the ferment to dissolve the solidified substances of the membranes. No other ferment has so far been able to obtain these results. It is on this account that many competent experimentalists and specialists have lately made observations as to these points. From all these circumstances there is no doubt that in papain we have a ferment which has a great future before it, and it is for this reason that I have made a special study of the manner of preparing the papain. I have had the satisfaction of obtaining the most favorable results from its use in the treatment of disease.—*Lancet*, July 23, 1887.

TETANUS SUCCESSFULLY TREATED BY COCAINE.—SOBER treated idiopathic tetanus with a solution of 5 to 100 of a mixture of hydrochlorate of morphia and hydrochlorate of cocaine. Three injections were made, and trismus diminished in two hours and the patient could move. Continuance of the treatment resulted in cure.—*El Genio Medico-quirurgico*, 1887.

THE PERSISTENT VIRULENCE OF TUBERCULOUS MATTER.—GALTIER, at recent sessions of the French Academy of Sciences, has drawn attention to the dangers of the transmission of tubercular infection by the clarification of wines with fresh blood, derived from tuberculous animals. He further believes that neither heat, as ordinarily applied; drying; contact with water; the action of salt; freezing; nor putrefaction destroys the infective power of tubercle.—*Gazette Hebdomadaire*, July 8, 1887.

THE GONOCOCCUS IN THE FEMALE GENITALIA.—STEINSCHNEIDER, of Neisser's clinic, in Breslau, has examined 57 prostitutes, finding in every case of gonorrhœa the urethra affected; in 47 per cent. the mucous membrane of the cervix uteri; in 50 per cent. the uterine cavity; occasionally, Bartholini's glands. In all recent cases the urethral secretion contained gonococci, whether scanty or profuse. Long after these germs disappeared from the urethral secretion they could be found in the cervix and uterine cavity, without visible inflammation. The vagina is not a good habitation for gonococci; either because its pavement epithelium is impervious, or its acid secretion destroys the bacteria, or because the great numbers of other bacteria destroy them.—*Annales de Dermatologie et de Syphiligraphie*, July 25, 1887.

THE ABUSE OF MILK DIET IN RHEUMATISM.—DR. BARTHOLOW writes as follows in the *Journal of Reconstructives* of July 12, 1887:

In no malady, as I conceive, is milk more abused than in acute rheumatism. It is very often the chief—sometimes the only aliment employed during the whole course of this disease. Besides the objection inherent in its mere bulk, certain theoretical considerations of its nature should have considerable weight in deciding the question of use. The very obvious objection that milk furnishes lactic acid as a product of its fermentation should not be ignored. All the world knows the intimate relation between lactic acid and the rheumatic poison. By the introduction of lactic acid, a form of endocarditis not distinguishable from the rheumatic, is set up, and of those diabetics treated by lactic acid, a considerable proportion suffer from attacks of rheumatic fever (acute rheumatism). It is difficult, of course, to determine this point with certainty, but I have reason to believe that patients with rheumatic fever do not get well so quickly, and are much more apt to have relapses when they consume much milk during the course of the disease. Surely, sufficient reasons exist for undertaking a thorough investigation of the question. My own practice, in the cases in which I am consulted, is to advise against the use of milk as an aliment in acute rheumatism.

THE PERCENTAGE OF STERILITY AMONG MEN.—KEHRER, of Heidelberg, has examined 96 men, as follows: Impotent, 3; having semen containing dead spermatozoa, 29; deficient spermatozoa, 11; excessive spermatic secretion, 53. The percentage of sterility is thus 33.32.—*Wiener Presse*, July 10, 1887.

NASCENT IODIDE OF SILVER IN CATARRHAL CONJUNCTIVITIS.—GROSELLI has used the following with advantage:

Argenti nitrat.	3.56 parts.
Glycerin.	6.50 parts.
Aquæ	3.50 parts.

Dissolve; filter, and keep in a colored flask.

Also,

Potass. iodid.	3.32 parts.
Glycerin.	6.50 parts.
Aquæ	3.50 parts.

Dissolve; keep in uncolored glass.

For use mix in a glass 2 drops of the first solution and 3 drops of the second. The lids are touched with the yellow precipitate which forms; they should be turned before the application is made.—*Gaz. Med. Italiana.*

A REMOVABLE WATER GLASS JACKET FOR SPINAL DEFORMITIES.—DR. BRUNS, of Jitomïr, Russia, is quoted by the *London Medical Record* of July 15, 1887, as describing the following jacket:

A serious drawback of Sayre's jacket is that it cannot be taken off at will. The patient must constantly wear it for weeks, which often gives rise to pressure sores as well as (in pauper practice) to the appearance of numerous lice under the jacket; moreover, during the summer time the patient experiences a great inconvenience from heat, while bathing is impossible; any gymnastical exercise is also out of the question. To meet all demands, Dr. Bruns has invented a water-glass corset which may be easily taken off, while it is as solid as the plaster jacket, is not expensive (the materials required cost about five roubles, that is, about ten shillings), and may be prepared from the materials accessible to every practitioner. To make a corset for a child, aged from eight to ten, he uses 4 pounds of best, and 15 to 20 pounds of ordinary burnt plaster-of-Paris; then 3 or 4 pounds of water-glass, about 230 feet of linen roll-bandage, 6 or 7 small leather straps with buckles, strong threads, etc. Of instruments, only scissors, a knife, and a cobbler's awl are required. To obtain a cast, a thin Sayre's jacket is prepared. The weight of the apparatus, for a child, eight or ten, is about 3½ pounds. "Up to the present the author tried his corset in two cases (in that of a boy, aged eight, with thoracic kyphosis, and of a girl, aged twelve, with intense scoliosis). The results (obtained from a six months' use) are said to be excellent.

PRECAUTIONS TO BE OBSERVED IN THE USE OF COCAINE.—DUJARDIN-BEAUMETZ is quoted as advising the recumbent posture during hypodermatic use of cocaine to avoid syncope. In twenty-four hours not more than seven and one-half grains should be given. Doses of one-seventh of a grain, repeated cautiously, are safest. The circulation of patients who are anæmic, or the subjects of cardiac or aortic disorders and liable to syncope, should be carefully watched.—*Journal de Médecine*, July 3, 1887.

ANTAGONISM AMONG BACTERIA.—GARRÈ is quoted by the *Deutsche medicinische Wochenschrift* of July 7, 1887, as reaching the following conclusions from a series of experiments. Inasmuch as pure cultures of bacteria do not grow extensively, but seem to be self limited, possibly by their own excreta, the experimenter mixed bacteria and their products, and found that the nutrient material was often so changed on the addition of a second that the first bacterium could no longer increase.

It was found that the *bacillus fluorescens putridus* of Flügge secreted an easily diffusible substance whose oxidation products colored gelatine green, and prevented the development of the Staphylococcus pyogenes aureus and the bacilli of pneumonia and typhoid fever. The reverse is not always the case in antagonism. Bacteria which grow in the same nutrient materials are called by GARRÈ symbiotisch. Examples of antagonism in the body are afforded by the destruction of cholera bacilli in water and other fluids by saprophytic bacteria. The same may occur in the intestine. The slow progress of periostitis of the jaws is an example of antagonism by the mixture of the staphylococcus with other germs. Garrè concludes that preventive inoculation is not to be made by bacteria of the same, but of unlike kinds, to those against which protection is sought; there is a possibility of successfully combating infectious diseases by prompt inoculation with appropriate bacteria.

NOTHNAGEL'S TREATMENT OF TYPHOID FEVER.—The *London Medical Record* of July 15, 1887, quotes a lecture by NOTHNAGEL, of Vienna, as follows:

In the treatment of acute infective diseases the great point is to search for so-called specific remedies. In quinine we have a drug which renders the malarial

poison innocuous, and we know that mercury and iodine destroy the syphilitic bacilli without destroying the organism. Of all the drugs recommended as specifics for typhoid, not one has stood the test; even calomel, when given from the very commencement of an attack, only seems to shorten the disease, but does not cure it directly. Calomel acts in two ways—first, it is a purgative, and helps to remove the bacilli from the intestinal canal, but castor-oil is quite as beneficial in this sense; secondly, calomel is a most powerful parasiticide, but it has not yet been proved to be a specific for the poison of typhoid fever. The only treatment, therefore, remaining is to treat symptoms as they arise. There are three indications met with in every case: 1, food must be given; 2, the fever reduced; 3, the abnormal secretions kept within bounds. The author considers it necessary to feed his patients energetically, but the food must be given in the fluid form. To begin with, a typhoid patient requires a great deal of water, and he should be given something to drink about every quarter of an hour, either milk, or water, or wine and water; aërated waters should, however, be avoided, especially when gurgling is present. Then, as regards nourishment, milk is the chief article to rely upon, but broth mixed with white of egg is a very useful addition. From a quart to a quart and a half of milk a day, together with the whites of three or four eggs, mixed with broth or soup, will enable a patient to get through an attack of typhoid fever, together with a little stimulant each day. It is most important to insist, on those nursing the patient, that a chart should be kept stating the times food is given, also the quantity taken each time, so that at the end of every twenty-four hours, the exact amount of nourishment taken can be calculated. When the fever has subsided two or three days, the patient may have a little calves' brains or sweetbread, with a little cocoa or chocolate; after a week without fever, a little scraped raw meat, about a teaspoonful at a time. The author holds that in every case of typhoid wine is necesary, at first sparingly, but if there be signs of cardiac weakness, then alcohol should be given freely. A bad case of typhoid can take a very large quantity of alcohol daily without any effect being produced upon the mental condition. As far as the second point indicated, viz., combating the fever, it does not shorten an attack to give antipyretic remedies; even though the temperature be kept near normal, the disease runs its course just the same; the judicious use of the bath, either hot or cold, does, however, benefit many cases; in the early stages the cold bath acts best, but after the second week it is better to employ lukewarm baths at a temperature of 86° to 90° F.

TREATMENT OF WHOOPING-COUGH BY INSUFFLATION—MOIZARD has used the following:

Benzoin. pulv.,	
Bismuth salicylat. . . .	āā 5 parts.
Quiniæ sulphat. . . .	1 part.

Insufflation through a simple tube (rubber) from three to five times daily.—*Revue Gênérale de Thérapeutique*, July 14, 1887.

TRACHEOTOMY AFTER INTUBATION.—DR. IRWIN H. HANCE, of New York, has collected (*Medical Record*, June 25, 1887) nine instances of intubation in which tracheotomy became necessary. Recovery followed in five instances, death in three, and the result in the ninth was not reported. This record suggests an important query: Would the recoveries have been fewer had the tracheotomy been performed in the first instance? The showing would be an unusually good one for uncomplicated tracheotomy without the delays of intubation and subsequent accidents, such as slipping of the tube. On the other hand, did the previous intubations render the tracheotomies less dangerous? Who knows?

VESICAL PAPILLOMA; SUPRAPUBIC INCISION; RECOVERY.—WIESINGER reported the following case to the Medical Society of Hamburg:

Patient, aged sixty-one, had symptoms of vesical papilloma, hæmaturia, pain, pus and débris in the urine. He was treated by suprapubic incision; removal of the mass, which filled the bladder, by the fingers, curette, and Paquelin cautery; tamponing with iodoform gauze to prevent hemorrhage; non-closure of the wound. Tampons remained in the bladder eight days. On the tenth day after operation digital examination revealed a spot of roughness which was removed by a sharp spoon; tampons again inserted for one day. Wound entirely healed six weeks after operation. Patient in good health five months afterward.—*Deutsche medicinische Wochenschrift*, July 7, 1887.

MÉTHYLAL.—In *Le Progrès Médical* of July 2, 1887, MAIRET and COMBEMALE report forty-one cases of mental disease in which this drug was used as a hypnotic. They conclude as follows:

The drug has little effect in acute alcoholic mania, and in the first stages of ordinary acute mania; in the later stages of mania and in the various dementias it is a useful hypnotic in doses of from 75 minims to 2 drachms; in some forms of dementia the dose may be reduced to 75 minims. For the first five or six days a good effect is produced, which does not continue, and an interval of two or three days must then elapse before the nervous system is again susceptible to its influence. Méthylal they found to be a pure hypnotic, agreeable to take and without ill after-effects.

THE TREATMENT OF SUNSTROKE, IN CHILDREN, WITH ANTIPYRIN.—DEMME, of the Children's Hospital in Bern, reports the case of a boy three years old, in whom heat prostration caused severe cerebral hyperæmia with eclamptic convulsions, whose temperature was 40° C. After 3 doses of 4½ grains of antipyrin in hourly intervals the temperature fell to 36.7° C., and the convulsions ceased. For three days the temperature varied between 36.4° and 37.8° C. On the morning of the fourth day the temperature rose to 39.3° and an exanthem resembling measles appeared on the trunk, extremities, and lower portion of the face. The exanthem disappeared in three days. After two days another rise of temperature to 39.7°, with convulsions and symptoms of cerebral hyperæmia, occurred; antipyrin, in the doses given before, produced promptly a fall of temperature to 37.3°. On the fourth day afterward another rise of temperature to 38.3° C. and a recurrence of the eruption occurred, although to less extent. The case is interesting from the presence of

the antipyrin exanthem, with symptoms of fever.—*Wiener medizinische Presse*, July 17, 1887.

APPLICATIONS FOR ACNE.—HEBRA'S is the following:

Sulphur. præcipitat. . . .	āā ʒss.
Potassi bicarbonat. . . .	
Glycerin.	
Aquæ lauro-cerasi . . .	
Spts. vini	

A favorite lotion at the Hospital of St. Louis, in Paris, is

Sulphur. præcipitat. . . .	½ to 1 part.
Alcohol. camphorat. . .	1 "
Aquæ rosa	100 parts.
Aquæ destillat. . . .	150 "

Shake before using.

To be applied every evening with a brush; an ointment of zinc oxide may be used during the day.—*Revue Générale de Thérapeutique*, July 14, 1887.

ANÆSTHESIA BY CHLOROFORM AND OXYGEN.—DR. KREUTZMANN, of San Francisco, reports his results with this method of anæsthesia in twenty-five cases, as follows:

Especially noticeable in a number of instances was the rapid action of the mixture of chloroform vapor with oxygen. Thus, it was repeatedly observed that after a few respirations the patients were sufficiently anæsthetized to permit of the performance of an extremely painful operation without occasioning the slightest suffering, as, for example, the introduction of a catheter in cases of violent urethritis and cystitis, brisement forcé, unaccompanied by any irritation. All reflex remained, nor were the patients completely narcotized, but they had no perception of pain whatever. When the administration of the anæsthetic was discontinued, they recovered consciousness almost immediately, were perfectly rational, felt entirely well and remained so. The patients were only in exceptional instances affected by very slight headache and nausea.

In other cases a complete anæsthesia was obtained, with cessation of all reflex action, for the purpose of making larger operations. Here, as well as with the others, the general feeling of ease and freedom from vomiting and retching and absence of headache was a striking circumstance.

Children and younger persons were placed under its influence quickly and easily, whereas chronic drunkards required a longer time, and slight excitation, such as raising the head and attempts to remove the inhaler, were noticed. They were, however, nothing to compare with the frantic struggle made when ether or chloroform is used, nor did any disagreeable symptoms follow.

The anæsthetic used in conjunction with the oxygen was Billroth's mixture, and the amount required to produce its complete effect was astonishingly small.

The discoverer of this method, Dr. Neudorfer, of Vienna, claims, on theoretical grounds, that its employment is entirely without danger.—*Pacific Medical and Surgical Journal*, August, 1887.

AN IMPROVED CAUSTIC PASTE.—DR. JULES FELIX, of Brussels, having found existing caustics unsatisfactory from the great pain which is caused by their application, from the difficulty of limiting their action precisely to the part desired, from their deliquescence and from various other causes, has devised a form of caustic paste which he has been using for some time past with the best results. It does not cause severe pain or set up any general reaction; the eschar is hard and well defined, so as to be easily detached. It is also a powerful antiseptic and hæmostatic. It is not deliquescent, but keeps its consistence, which is that of putty, well, and so lends itself easily to manipulation. The hands should be well wetted when applying it. They are not in any danger of being acted on. The paste is allowed to remain for from six to twenty-four hours according to the amount of eschar which it is desired to form. The formula for the paste is as follows: Mix in a mortar the following substances in powder: Starch, 37 parts; wheat flour, 112 parts; bichloride of mercury, 1 part; dry chloride of zinc, 110 parts; iodol pure, 10 parts; croton chloral, 10 parts; bromide of camphor, 10 parts; crystallized carbolic acid, 10 parts. Then add gradually a sufficient quantity of distilled water to form a homogeneous paste without lumps of the consistence of putty. This paste will keep an indefinite length of time.—*Lancet*, August 6, 1887.

SOLUTIONS FOR VESICAL DOUCHES.—ULTZMANN, of Vienna, has used the following with good results:

For an irritable bladder lukewarm water with a little tincture of opium; solution of cocaine ¼ per cent; resorcin ½ per cent.; carbolic acid ⅙ per cent. When urine decomposes in the bladder solutions of potassium permanganate $\frac{1}{10}$ per cent., or 3 drops of amyl nitrite to a pint of water are injected. For phosphaturia $\frac{1}{10}$ per cent. salicylic acid is used.—*Centralblatt für Chirurgie*, July 23, 1887.

THE PREVENTION AND TREATMENT OF FLY BITES.—MYLIUS, of Leipzig, has found that flies have a most acute sense of smell, and that the irritation of their bites is caused by an acid lodged in the wound by the sting. After a long series of experiments with ointments and perfumes, he failed to find a satisfactory agent for preventing fly bites, which could be conveniently used with children. As a means of treatment Mylius has prepared pencils of ammonium carbonate, camphor, and menthol which can be instantly applied after a bite. Occasional cases were observed in which the sting had entered the lymphatics producing more severe infection. Such cases may be treated by cold compresses saturated with equal parts of dilute carbolic acid solution and lead water, to which is added 10 per cent. spirits of camphor. —*Deutsche medicinische Wochenschrift*, July 21, 1887.

ANTIPYRINE BY SUBCUTANEOUS INJECTION, IN COMPARISON WITH MORPHINE.—GERMAIN SÉE has employed this drug by injection in doses of a Pravaz's syringe, which contained a solution of eight grains dissolved in an equal weight of water. It first effect was local pain, and a sense of tension, which was followed by its analgæsic effect. It possesses the advantages of morphine, especially in gouty pains and in neuralgia, without its inconvenient after-effects.—*Gazette Hebdomadaire*, July 15, 1887.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, SEPTEMBER 3, 1887.

THE INTERNATIONAL MEDICAL CONGRESS.

THE great event in the medical world for the coming week is the meeting of the Ninth International Congress in Washington. The first of these congresses was held in Paris, in 1867; the second in Florence, in 1869; the third in Vienna, in 1873; the fourth in Brussels, in 1875; the fifth in Geneva, in 1877; the sixth in Amsterdam, in 1879; the seventh in London, in 1881; and the eighth in Copenhagen, in 1884. The original intention was that they should be held every second year, but it was thought best to defer the Vienna meeting until the year of the great international exposition; and, at the London meeting, it was decided that once in three years would be as often as it is desirable to have such congresses in the future.

The great object in these meetings is increase of knowledge, individually and collectively, by bringing together from all parts of the world men engaged in all departments of medical science and practice, that each may teach that which he knows better than anyone else; and may learn something, if it be only the breadth and depth of his own ignorance. This is effected, not merely by formal papers, but by the discussions in the Sections, and still more by personal intercourse.

The papers and addresses will be printed, the discussions will be reported, and one may consider these at his leisure; but the informal conversations with, and the glance of the eye and the facial expression of, the men whom we recognize as leaders in investigation, in thought, and in practice, cannot be reproduced.

Such meetings exercise a powerful stimulus upon all who know how to accept their benefits. There are a few men always in the world who not only do good work themselves, but who arouse in all who meet with them a desire also to do good work. No one can meet and listen to such men as held the most prominent positions in the London and Copenhagen Congresses, the recognized leaders in European medicine, without feeling that he is in the presence of those who are working to advance medical knowledge with little thought of pecuniary reward, of personal ambition, or of desire for applause; and this feeling will make him an humbler and a better man, and, so far, a wiser one. It is not the business of such Congresses to legislate, or to express opinions on local matters. As Professor Panum, the President of the Copenhagen Congress, said in his opening address, "Nationality does not count in science, it should have nothing to do with our Congress. We are not here to discuss national or political problems, on the contrary, all discussion upon such subjects ought certainly to be forbidden here."

At all events, the less conspicuous medical politics and medical politicians are in these international gatherings the better it will be for their reputation and permanent influence for good.

We hope that the Washington Congress will steer clear of all pitfalls, make important contributions to medical science, and leave behind it nothing but pleasant memories in the minds of all who attend it. The prospect is that the meeting will be a large one, and that there will be a superabundance of papers to hear and discuss, while the element of social enjoyment will not be deficient. If the weather is favorable, as there is every reason to believe that it will be, those who visit Washington next week may be sure of having a good time, and we offer our best wishes that the Congress may be as complete a success as those who have charge of its organization desire to make it.

THE MEDICAL NEWS will have a large staff of special reporters and correspondents in attendance at the Congress, and complete arrangements have been made for promptly placing before our readers a full report of the proceedings.

THE ANTAGONISM BETWEEN BELLADONNA AND OPIUM.

THE importance of arriving at an absolutely correct opinion as regards the antidotal influence of atropia in opium poisoning cannot be over-estimated, since, of all forms of toxæmia due to vegetable poisons this is the most commonly met with, not only by the hospital physician, but also the ordinary practitioner. Perhaps no better example of the value of results obtained by experimentation on the lower animals can be adduced than the benefits derived from our increased knowledge of the physi-

ological action of the two drugs whose names are at the head of this article.

Those of our readers who thirty years ago listened as students to lectures on therapeutics and kindred subjects, will remember that although the symptoms and treatment of poisoning by opium were dwelt upon as important matters, that very little was known as to the direct causes of the signs or the reason for the treatment. Now we know that opium kills by depressing the respiratory centre, and that atropia acts as an antidote by stimulating it, and we also have such additional knowledge as will enable us to treat such cases understandingly, and with real reason.

Notwithstanding the fact that almost all writers believe atropia to be our mainstay in such cases, it is but right that evidence to the contrary should be at least brought to general notice; and in quite an exhaustive paper by LENHARTZ, in the *Deutsches Archiv f. klin. Med.*, 40 B., 5 and 6 Hefte, the whole question now before us is most thoroughly aired from an almost purely clinical standpoint, by means of reports of cases and the aid of a considerable amount of bibliographical labor. The article as a whole, while not denying the usefulness of atropia as an antidote in opium-poisoning, rather decries its constant use, and points out that certain serious symptoms may arise if atropia be used. To be more concise, Lenhartz believes that the unqualified approval of atropia as an antidote in opium-poisoning, so commonly found in the text-books, should be regarded with disfavor, and that the drug should only be used as one of many remedies, and given with a full understanding of the conditions present.

We cannot help feeling that Lenhartz is right in this matter, and the importance of withholding atropine at certain stages of the poisoning can best be recognized by the recollection of the physiological action of the two drugs. It will be remembered that in opium poisoning we have three stages, in the first there may be slight feelings of drowsiness ending with sleep, in the second a constantly deepening sleep with a slow, full, strong pulse, and respirations constantly decreasing in frequency, while in the third stage there exist a rapid, running, feeble pulse and profound depression of respiratory movement. This rapid, feeble pulse in the third stage is simply due to palsy of the peripheral vagi and depression of the heart muscle and its ganglia, coupled with the exhaustion resulting from ventricular distention due to the impaired pulmonic movements. If the reader now calls to mind the fact that atropine is likewise depressant to the heart muscle even in medicinal doses, it at once becomes evident that the use of atropine in this last stage of opium poisoning may, while stimulating respiration, so depress the heart as to bring on serious circulatory symptoms or perhaps death.

While we may rely on atropia in the first and second stage of the poisoning, in the third stage we think it may be laid down as an invariable rule never to use atropia unless accompanied by cardiac stimulants, and that even then the patient should be most carefully watched for signs of circulatory disturbance. It is very evident from the history of most of the cases in which unfavorable results have been reached under the use of atropia that the condition of the circulation was overlooked by the attendant when the drug was administered, and that death resulted from cardiac failure in the manner just stated.

THE MT. HOLLY EPIDEMIC OF TYPHOID.

THE direct causation of typhoid fever by water containing the bacilli peculiar to this disease has again received a positive demonstration in the recent epidemic at Mt. Holly. The attention of the profession has been drawn of late to this subject by the typhoid epidemic at Plymouth, by the cases at Pierrefonds, by the Conanicut Park Hotel cases, and by the recent biological examination, by Dr. Ernst, at the Harvard Laboratory, of the water furnished the steerage passengers on an Atlantic steamer, the use of which was followed by a typhoid epidemic.

It would seem as if no frequent cause of disease had been so thoroughly proven as contaminated water in the production of typhoid fever, and yet the duty which this established relation of cause and effect imposes is frequently neglected by those responsible for the sanitation of a community or a household. While health legislation may be attended by the delays usual in politics, yet thorough scrutiny of the sources of water supplies is as imperative upon the physicians and citizens of a town as are the performance and regulation of vacinnation; and the public will not heed properly this obligation until sanitary administration shall be made equally stringent upon this point.

The most remarkable result of the scientific study of the Mt. Holly cases, by DR. LEEDS, in the present issue of THE NEWS, is the demonstration of the fact that a quantity of alum, so small as not to injure water for drinking purposes, is sufficient, not only to clarify it, but also to reduce greatly its bacterial contents. If further investigation establishes the value of alum as a germicide, we shall be in possession of a readily available agent well calculated for use in these cases.

Dr. Leeds' investigation is of great value and interest, and the further trial of alum in the capacity indicated will be an important and useful experiment.

RAILWAY BRAIN.

AT a recent meeting of the Society of Physicians of the Charité Hospital, in Berlin, THOMSEN exhibited a patient whose case he described as one of "railway brain," a neurosis resembling in many respects the condition already well known under the name of "railway spine." A healthy railway employé, aged thirty, without history of alcoholism, or of any predisposing neurotic condition, by the sudden motion of his train was thrown violently against the side of a car, striking his head. He sustained no wound, and at the time of injury consciousness was preserved. Some hours afterward, however, he was suddenly seized with syncope, with mental terror, lost all sense of location, could not recognize the simplest familiar object, and described what he saw erroneously; his one objective symptom was absolute anæsthesia of the entire body. On the fourth day after his injury he had violent headaches, a pulse-rate of 44, and, in addition to the cutaneous anæsthesia, loss of olfactory and taste sensations, with difficult hearing. On the fifth day the psychic symptoms suddenly ceased, he could remember nothing which had happened, and had no explanation for his condition.

The patient subsequently became very melancholic, complaining of insomnia, headaches, spinal pain, weariness, and failure of appetite; no sensations of terror or disordered dreams were present. The objective symptoms remaining were well marked cranial and spinal hyperæsthesia; failure to distinguish between white and colors; loss of smell and taste, and impaired hearing; numbness, and at times paresis and spasms, of the region supplied by the facial nerve were also present. He was discharged from the hospital as improved, but two months afterward his condition was unchanged; he was unable to work on account of headache and weakness. Thomsen's diagnosis was "railway brain," a condition of profound disturbance of cerebral functions from shock. The prognosis he stated to be doubtful; the treatment hygienic and palliative.

The increase in mechanical appliances, and the immense extension of railways, afford abundant opportunities for observation of nervous shock, both in its fatal and milder forms. While post-mortem demonstration of hemorrhage and structural lesions explains the course of these cases when fatal, it is evident that we must rely upon the continued observation of surviving patients to determine the development of lesions which will illustrate the pathology of this condition. The possibility of the production of degenerative changes in nervous matter, and cerebral conditions causing permanent mental impairment, is an interesting question for neurologists, and, in its medico-legal aspects, for the corporation whose property may cause such injuries to their patrons and employés.

STENOCARPINE.

THE recent discovery of a new anæsthetic substance in the leaves of a tree abundant in Louisiana, and the experiments made with this substance by DR. JACKSON, of Philadelphia, whose paper appears in the present issue of THE NEWS, as well as the observations of DRS. CLAIBORNE and KNAPP, of New York, are of the greatest interest.

The properties of cocaine have become so well known that it is but natural that the anæsthetic effect of leaves, gathered by chance, and expected to serve only as retainers of heat and moisture, should have aroused curiosity in an intelligent mind. The demonstration of the presence of an alkaloid possessing anæsthetic powers superior to cocaine, and also mydriatic effects exceeding those of homatropine, renders this substance highly valuable in therapeutics.

The Australian alkaloid, drumine, the most recent rival to cocaine, has not realized the expectations of its discoverers, and if American forests can furnish a substance combining and exceeding the actions of two of the most valuable alkaloids now known, it will demonstrate anew the medicinal value of the flora of America, and should stimulate a more complete study of its resources.

THE record of yellow fever cases at Key West up to August 28th, according to the reports of the Board of Health, is as follows: new cases, 1; deaths, 60; discharged cured, 171; still sick, 139.

REVIEWS.

AUTOBIOGRAPHY OF SAMUEL D. GROSS, M.D., D.C.L. OXON., LL.D. CANTAB., ETC., WITH SKETCHES OF HIS CONTEMPORARIES. EDITED BY HIS SONS. In two volumes, 8vo., pp. xxxii., 407, 438. Philadelphia: George Barrie, 1887.

IT is only a few years since the biographical sketches by Drs. Flint, DaCosta, and Hays made the public familiar with the leading events in the life of Dr. Gross. The remembrance in which he is held by the medical profession is as vivid as it is widespread. If it be lacking in the former quality, the present work will do much to fill out the picture and insure its permanence. In the chapter in which Dr. Gross makes an estimate of himself as an author, he refers to the general opinion that he is fond of writing, and proceeds to confess the soft impeachment. Although noted as a man of action in the amphitheatre, many of his happiest hours have been spent in his study, with his much-loved pen for a companion. He evidently found composition an easy task. We like to do what we do well. Fortunately for us he had time in his later years to write the present account of himself and some of his contemporaries.

To make such a story interesting to any but the small circle of intimate friends, it must speak of a man among men who stood in the front of life, and took part in events of importance. While the author's life had no political significance, it had enough in it of the unusual and picturesque to make a pleasing book. One who did so much to give American surgery a name abroad, and who won a deserved eminence at home, must in the evening of his days have memories and reflections well worth attention. He was brought in contact with, and presents reminiscences of men who were first in their callings, including, among statesmen, Jackson, Clay, and Webster; among the clergy, bishops and archbishops, and *savants* of all the sciences upon both continents. Having served in four renowned medical colleges in as many different States, he has much to contribute to the history of these institutions. But his most valid claim as an acceptable autobiographer rests upon the fact that his own life had in it the element of interest due to exceptional incidents and situations. When to this element we add a sense of humor and wholesome good nature in the writer, who has the art of keeping his alert individuality constantly before us, we have a story which is sure to be read with satisfaction, and prove a recreation to the reader. His style is simple and clear, but as the man was positive so his writing is often spirited and pungent. He was a born doctor of the teaching type. His early education was incomplete, though he did much in private study to repair its deficiencies. What he lacked in knowledge of the classics was made up by his acquirements in French and German. These were, for the medical career, of more importance, and there is proof that they were of material help to him all through life. He had an energy which prompted him to be an investigator and a producer of books and essays upon many different subjects. He had a decided talent for public speaking. To a fine presence and great fluency of speech he joined a mellow, well modulated voice, graceful action, and an enthusiastic delivery. These were sure to captivate his audience in the beginning. His popularity as a teacher was due further to the art with which he economized the students' power of attention. Having informed himself thoroughly on his subject, he took a plane of thought just above his auditors, but in the line of easy vision. They were thus enabled to see the truths he would inculcate without changing their natural intellectual posture. It was never an effort to follow him, and without the least straining his students took hold on the principles he presented.

In the larger part of the present book his constant theme is, as it ought to be, himself. Yet he writes of himself with studious moderation, and keeps within the bounds of perfect taste. Under the headings of "Professional Income and Fees," "Teaching," "As a "Practitioner," "As a Writer and Author," "Habits," "Labors," he attempts to estimate impartially not only his character but his achievements. And though he makes a statement which, to say the least, is free from exaggeration, the general effect is inspiring to those who, with a small opinion of their own merits, would yet do something with their lives better than common. As a specimen of a great deal that is wholesome for the reader, we may take this paragraph: "The position which I have attained in my profession has been achieved by hard blows, by no special intellectual endowment, by no special gifts from God, by no special favor from man, but by my own unaided efforts, continued steadily and perseveringly through a long series of years, during which a kind Providence afforded me sound health, lofty ambition, and unflinching fidelity to my profession." Occasional pages of literary power are encountered. Such, for example, is the picture drawn of the hardships of the surgeon. As an offset to sentimental objections to cremation, the cremation society might make use of this passage: "I want to be useful when I am dead, which I cannot be if I am stuck away six feet into the earth. If I am burned, my body will enter again into new creations, and thus be subservient to some useful purpose. It may assist in animating a flower, in ornamenting the plumage of a bird, or in directing the movements of a caterpillar."

Several chapters are given to an account of his European travels. What is personal to himself and the distinguished men who delighted to do him honor, will be read with interest, but we must frankly express the opinion that this narrative of travel is not equal to the best part of his work. One-third of the second volume may be deemed supplementary, as it is devoted to "sketches of some distinguished contemporaries." Most of these were medical men of note, with whom the writer had some connection as colleague. Taken together, these sketches serve not only to portray individuals, but by small touches outline the times in which they figured. Some of them demonstrate that friendly partiality which was always a winning trait of Dr. Gross. He was a very appreciative friend, but even his rivals and opponents are handled humanely in these highly readable pages.

The editors, Dr. S. W. Gross and A. Haller Gross, Esq., deserve a word of commendation. With so many proper names to deal with, the errors are surprisingly few.

They did well to include the memoir by Dr. Flint, which gives information needed to make the history complete, and is itself a testimony so well rounded as to leave little to be desired. The epitaph by Dr. Yandell, which is fitted to it by the editors, makes an admirable finish. The index is copious, and together with the engraved frontispieces, the heavy paper, and perfect type work, gives to this worthy book a satisfactory, indeed, an elegant form.

CORRESPONDENCE.

PROFESSOR VON BERGMANN'S CLINIC.

AMONG the distinguished surgeons of Germany, Prof. E. von Bergmann, stands in the first rank. His many contributions to the science of surgery, his wonderful skill in the art, and his brilliant results justly entitle him to the position of President of the Congress of German Surgeons, to which he was elected at the last meeting. His daily public clinics, which are well attended, are very interesting and instructive. The richness of the material of his hospital, the *Königliches Klinikum* is such, that only a selected portion of the operations are made before the class. He is even able so to arrange as to have several cases for similar operations at the same clinic, or various morbid conditions of the part to point out the differential diagnosis.

It was with great pleasure and profit that I attended these clinics during the summer semester, which has just come to an end, and it may not be without interest to the readers of your journal to give a short account of the work done.

The wonderful results of thorough and intelligent antiseptic precautions are nowhere better shown than here. When it is seen that major amputations are brought before the class on the twentieth day completely healed, that cases, in which extirpation of the rectum with opening of the peritoneal cavity has been made, go on to recovery without any fever, that in a case of partial excision of the superior maxillary bone with removal of all the walls of one orbit, opening the membranes of the brain, and its prolapse, the patient recovers without an untoward symptom, when, in fact, the prognosis of an operation, where there was no previous sepsis, can be made with almost as great certainty as that of a simple fracture, it cannot be but useful to look into the special methods under which this is accomplished.

The antiseptic precautions are vigorous though simple. Besides a preliminary bath, the surfaces in the wide neighborhood of the scene of operation are shaved, and immediately before operating again thoroughly washed with soap and water and brush, and then with a strong solution of corrosive sublimate ($\frac{1}{10}$th per cent.). All those parts adjoining the field of operation are then wrapped in or covered by towels wrung out in the sublimate solution, and with this same solution the wound is frequently irrigated during the operation; no spray is used. The instruments are kept in a solution of carbolic acid during the operation; they have for the most part smooth metallic handles, which are easily kept aseptic. Sponges are seldom used, little bats of soft, sterilized, crinoline gauze taking their places, though the former are sometimes indispensable in very bloody operations. All those engaged in the operation are dressed in clean, white gowns—and the most careful washing and disinfection of hands is observed before every operation. Comparatively little blood is lost, for two skilled assistants are constantly ready with artery forceps to grasp every bleeding spot, however small it may be. This thorough control of subsequent hemorrhage is certainly one of the factors of success.

The disinfection of a wound after an operation is accomplished by means of the sublimate solution or of *iodoform-ether*. The latter, a simple 10 per cent. solution of iodoform in ether, is a favorite disinfectant after operation on bone, after exsections of tuberculous joints, and whenever a tampon will subsequently be left in the wounds. This solution possesses all the virtues of powdered iodoform, beside the additional advantage that it thoroughly covers the whole surface in all its recesses, and after all excess of the fluid is removed, but a very small quantity of iodoform is left in the wound. Furthermore, the charge of bringing microörganisms into a wound cannot be made against this agent, as it has been against the powdered form of iodoform. Wounds, it matters not how large, if their surface can be brought together, are closed immediately after the operation, sutured and covered with a permanent dressing, drainage tubes being often used, especially in the larger wounds.

The very largest wounds only, such as amputations of the thigh, are reëxamined on the third day. After operations on bone or in joints, an iodoform-gauze tampon is left in the wound for about two days, and at the end of that time removed, and the wound then is closed by sutures, a proceeding which, he shows, does not interfere with union by first intention. In those cases also where there was previously a septic condition, for example, an amputation for gangrene, he does not close the wound immediately, but treats similarly, closing it on the third day, if everything goes well. On the other hand, he strongly disapproves of the practice of tamponing an abscess cavity, which proceeding, he claims, results in the collection of pus in the wound—here he uses drainage tubes and plenty of them. His dressings consist of sterilized crinoline-gauze, containing corrosive sublimate and absorbent cotton. Bandages are also made of the former material. A few layers of iodoform-gauze are also frequently used, being applied directly over a wound. These dressings are always applied dry, and allow rapid evaporation to go on through them, a property upon which Prof. v. Bergmann lays great stress, for, as shown by Esmarck, they allow the deepest layers to remain dry, and dryness is most unfavorable to the activity of microörganisms.

To make a short sketch of the work done during the last three months, the duration of the summer semester, I cannot do better than repeat the *résumé* given by Professor v. Bergmann at the end of the last clinic. Excluding the opening of abscesses and the like, there were 124 greater operations. Of these, there were 10 major amputations, beside 2 at the hip-joint. There were 18 resections of larger joints, 12 of which were at the knee, 4 at the hip, 1 at the shoulder, and 1 at the elbow. There were 8 osteotomies (made for different conditions, *i. e.*, genu valgum, rachitic curvature of the legs, etc.), 5 necrotomies (in two of these the bones were chiselled out for osteomyelitis spontana acuta), 3 operations for pseudarthroses, 3 incisions or punctures of joints, with irrigation with a solution of carbolic acid, one case of removal of depressed bone in a compound cranial fracture. The number of morbid growths removed was 47, of which 16 were benign. There were 5 carcinomas of the breast, 2 of the rectum; 10 malignant tumors of the face, neck, occiput, axilla, and femur (1 fibroma, 1 adenoma, 3 cysts); 3 of the testicle; 2 congenital cysts; 3 goitres; 3 lipomas of the back of the neck; 1 hydronephrosis; 2 housemaid's knees; 3 simple sebaceous cysts; 1 gouty knot from the plantar surface of the foot; 4 lymph cavernomas, and also the removal of a large number of tuberculous lymphatic glands of the neck in five cases (in which the internal jugular vein was frequently laid bare in almost its whole course, or even partly excised. Beside these there were 2 cheiloplastic operations, 1 rhinoplastic, 1 operation for artificial anus, 5 lithotomies (4 sectio altœ, and 1 sectio mediana); 3 for hemorrhoids (clamping and burning them off); 2 external urethrotomies; 1 myotomy (for torticollis); 5 radical operations for hydrocele; 3 castrations; 2 herniotomies, and 2 tracheotomies. Besides, a great number of patients were demonstrated, who had been operated upon at other times, or who presented interesting surgical affections, but who were not operated upon.

There are a few of the operations above, which deserve special mention. The rhinoplastic operation was made in imitation of the new method of König, accord

ing to which a rectangular flap, consisting of skin, periosteum and the outer lamina of the frontal bone, having a broad pedicle at the glabella, serves as a bony support of the nose. Its osseous surface is turned out, and is subsequently covered by skin, after the flap has become properly adherent. The hip-joint amputations consisted in a preliminary subtrochanteric circular amputation, made while the leg was constricted by a rubber tube applied as high as possible, and, after all the vessels had been tied and the tube removed, the subsequent excision of the head and remaining portion of the femur through a longitudinal incision over the greater trochanter. As no large vessels are cut in the latter incision, the whole operation can be made with little loss of blood.

The radical operation for hydrocele advised by Prof. v. Bergmann and performed in all the cases above mentioned, requires a long scrotal incision, and the peeling out and removal of the parietal portion of the tunica vaginalis. All bleeding vessels are tied, and the wound sewed, leaving a small drainage tube in the wound for two days, if there is any tendency to subsequent bleeding. It heals by first intention in eight or ten days, or if a drainage tube was used, in a few days more. The advantages which he claims for this operation are that it is the most radical cure, and that it allows all portions of the sac to come into view, so that other morbid conditions, sometimes the real causes of the hydrocele, are not overlooked.

HARRY FRIEDENWALD.

BERLIN, August 1, 1887.

REMOVAL OF THE UTERUS THROUGH THE VAGINA.

VAGINAL hysterectomy has passed through phases in its history like those of ovariotomy, and of many other capital operations. Beginning with a crude technique, and a very large percentage rate of deaths, and in the hands of but a few bold operators, it has now at length reached a status which bids fair before long to secure for it a recognition in the list of *safe* operations.

The first great step toward progress has been made in the establishment of the fundamental principle that no case is suitable for this operation in which the cellular tissues in the neighborhood of the uterus have been invaded; this fact being determined by the mobility of the organ, or the detection of infiltration or nodules by careful palpation, rectal, vaginal, vesical, or abdominal. Again, one after another of the serious difficulties in the technique have been met, and correct procedures established, so that it would finally seem that in the hands of some, but little was left to be desired.

While, however, this has been the natural history of the operation throughout Germany, in England and America the results have been the same. Cancerous disease of the uterus is in the latter rarer, and operations more than proportionally fewer, and the mortality of total extirpation great, in inverse proportion. The propriety of performing the operation *at all*, is still open for discussion; and, as a rule, palliative scrapings and applications have the preference.

It is scarcely more than a year since one of the most distinguished ovariotomists of England said to me, upon my informing him that my purpose in visiting Germany was mainly to study vaginal hysterectomy, "that is an operation which I hope you will never do." I will not here open up the question of propriety for any general discussion, hoping that the specific matter which I am about to offer will speak for itself in no uncertain tones.

Given a disgusting foul disease, extremely painful, lingering, and with absolute certainty progressive toward death, what living woman would not accept an operation tending toward a radical cure, with a death rate *less than seven per cent.*, and with a percentage rate of 69.2 per cent. of cases absolutely free from any signs of relapse after one, two, and three years? Such is the record I have the pleasure of offering at the personal request of Prof. Leopold, of the Obstetrical Institute at Dresden. He especially wishes that his work, an account of which has been published in the *Archiv f. Gyn.*, Nō. xxx. Heft. 3, should be appreciated by American surgeons, hoping that it will in some measure influence their practice.

The results in general have been that, *out of forty-eight cases* upon which he had operated, removing the entire uterus per vaginam, but *three died*, or 6.2 per cent. I make also the following deductions from a carefully arranged table included in the work referred to.

Out of 48 cases, 42 were cancerous, and out of these 42 but 4 involved primarily the body of the uterus, 38 being cancer of the cervix, preponderatingly "mushroom form." Most of which latter we, in America, will readily attribute to lacerations of the cervix, with eversion, infiltration, cystic formations, and, if not constant and consequent, the very frequent *concomitant*, later epithelial activity and cancerous formation. The youngest cancerous patient on the list was thirty-three years old, three being under thirty-five, and two over sixty.

The method by which these remarkable results were obtained is briefly the following: By steady traction upon the cervix uteri, slowly and step by step the appendages are brought down and tied off in small bundles. Torsion of the uterus on its transverse axis is avoided, and the utmost possible care taken to prevent loss of blood, including the assurance of freedom from any danger of secondary hemorrhage. After a thorough preparation of the patient by baths, local douches, attention to the condition of the bowels, and fluid but strong food before the operation, she is put upon the table in the dorsal position, and the vagina carefully washed out with a five per cent. solution of carbolic acid. All carcinomatous material is scraped and washed away under an irrigation of the five per cent. solution.

The uterine cavity is also most carefully cleansed with the same solution applied on cotton. The cervix is then caught and held firmly by Museux or other strong forceps, and a semilunar incision made around its anterior two-thirds, close below but avoiding the limits of the base of the bladder, generally indicated by a fold, and as far as possible from the limit of cancerous tissue. The index finger is then at once forced through the incision, separating the vaginal vault right, left, and in front, as far as possible, keeping the finger close to the cervix. The bleeding, mostly from the cut vagina, is checked by four or five ligatures passed through the vault, close to the margin of the incision. Extreme care may sometimes be called for by the degenerated condition of the tissue between the uterus and bladder, and it may be necessary here to pull down small portions and tie them off, with the utmost respect for the position

of the bladder-wall, as indicated by a catheter. Thus the first step is completed.

The second consists in connecting the angles of this anterior incisior by an incision posteriorly, in which the bleeding is also controlled by ligatures embracing the vaginal mucous membrane, at the outer margin of the wound. These ligatures through the vaginal vault *are all left long*. With the index finger the tissue posteriorly is also pushed up, and the cervix freed; then by catching up the loose cellular tissue just behind the cervix posteriorly, with a pair of forceps, the knife readily opens Douglas's pouch with a cross cut, into which a sponge about the size of a walnut is pressed, fastened to wire, wrung out of a five per cent. solution of carbolic acid. The bleeding, which is very apt to be continuous after this incision, is checked by sutures from the vaginal surface, near the cut, up into the angles of the peritoneum on either side, in a loop, and out again on the vaginal surface and tied. The steps in the operation thus far have succeeded in checking all hemorrhage, by the series of loop ligatures in the vaginal vault near the margin of the incision. The bladder has been pushed up, the cervix freed, and Douglas's pouch opened.

It now remains to tie off the broad ligaments on each side, and to free the bladder at its peritoneal reflection, and the hysterectomy will be completed. To separate the left broad ligament, the cervix is drawn strongly to the right with forceps, the index finger slipped in *behind* the left ligament, and the nearest presenting portion hooked down on the crooked end of the finger. On this finger as a guide, the dull needle threaded with stout silk is carried in behind, and the presenting tissue transfixed, the silk secured, and the needle withdrawn. The ligature is tied very securely, *left long*, and the tissue between it and the uterus carefully snipped with scissors.

This step is repeated many times, each time reaching a step higher up, until the tube is reached, but not yet tied. In the same manner, *mutatis mutandis*, the right broad ligament is separated from its uterine connection including tube. The vesico-uterine fold is now readily tied, and the *uterus* thus freed and *removed*.

Tubes and ovaries are only removed when they present readily in the field of operation.

Finally, the utmost care, and as much time as necessary, are employed in seeking out all possible sources of hemorrhage, which must with certainty be checked. Scarcely any blood has been lost throughout the whole of this operation, and the ligature of the parts *en masse* has been carefully avoided, and with the after-attention the results have been such that in the whole forty-eight cases but one secondary hemorrhage has arisen.

After removal of the sponge, and further careful cleansing with similarly prepared sponges if necessary, the ligatures are gently drawn down, and iodoform dusted lightly into the now funnel-shaped wound, a small roll of iodoform gauze laid in, and the same laid in the vagina. The ligatures are cut off at a length of four inches, and the whole vagina further filled with the gauze.

The operation lasts from one to two hours, and the appearance of the patient afterward is that of a woman who has gone through a healthy labor. Patients usually pass water unaided, and the bowels are opened on the seventh day. From the eighth to the tenth day the first vaginal examination is made, and the gauze and some of the loose ligatures removed. From the sixteenth to the eighteenth day the patient rises for the first time, and is dismissed only after she has fairly recovered strength.

Such is the simplicity attained in the technique of an operation which at one time ranked first in its death-rate. My effort has been not to give here that elaborate and minute description of which the operation is so well worthy, but to speak sufficiently in detail to demonstrate its extreme practicability, and, above all, to call the attention of American physicians as well as surgeons to the wonderful results thus attainable.

With the physician lies the serious duty of examining, at the earliest possible date, every woman complaining of symptoms in any possible manner connected with cancer, and it will then be the duty of the surgeon to give the patient the full benefit of such work as that which Professor Leopold has brought before us.

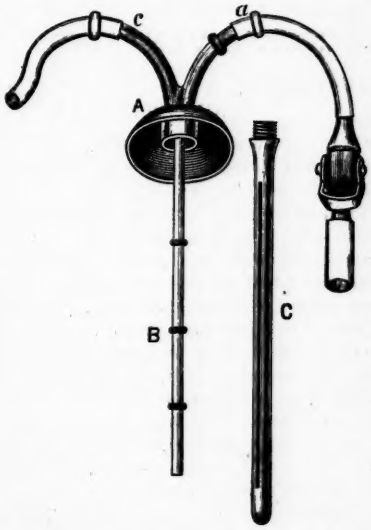
HOWARD A. KELLY.

PRAGUE, July 25, 1887.

ZUELZER'S KATHARAPHOR FOR THE URETHRA.

THE above-named instrument, designed by Professor Zuelzer, is well adapted to cleanse a diseased urethra of infectious bodies and inflammatory effusions. Its chief use is in cases of acute gonorrhœa, but it also finds application in the chronic state, with accompanying erosions, rents, broad superficial loss of substance and ulceration or croupous infiltration of the mucous membrane.

The customary method of using injections, suppositories, and ointments, is undoubtedly deficient in not providing for a preliminary, thorough washing of the affected tract, and the want of care and exactness, which lies in applying medicaments over an unremoved



layer of inflammatory products, needs hardly to be mentioned as incompatible with our ideas of antiseptic treatment.

By the use of the katharaphor this indication is fulfilled, and the ingenious and complete manner of its construction has lead to the belief that it is deserving of notice in America. The accompanying illustrations may serve to explain the instrument:

The bell A is of a size to cover the glans penis. The bent tube *a*, distinguished from its fellow *c* by an elevated ring, is connected with an irrigator of water or antiseptic solution, and terminates in the straight tube B. The latter has a length of 4½–5½ inches, and ends with a free opening. The outer tube C, encasing B, is screwed into the under surface of the bell and communicates thereby with the outflow-tube *c*. The outer tube is of silver or German silver, its lower end is closed and has a tip like a catheter's. Its sides are perforated by four long, broad slits. The three elevations on B prevent the outer tube C from bending inward.

The current of fluid in *a* B escapes at the open extremity. Through the slits in C it bathes the urethral walls, and the collected washings returning inward again are discharged through *c*. In the treatment of acute gonorrhœa in Zuelzer's clinic, the patient's urethra is irrigated once daily. The liquid is either hot or cold, the latter state being generally preferred on account of the comfortable sensations it produces. The washings are collected in glass vessels until the fluid no longer shows turbidity. By compressing the rubber tube attached to *c* the outflow is arrested. This is done at short intervals and tends to remove particles that would not otherwise come away.

An irrigation lasts from fifteen to forty minutes. It may, of course, when possible, be frequently repeated. Prof. Zuelzer usually combines the use of medicated suppositories, but not with any decided influence on the duration of the purulent discharge. This, as a rule, entirely disappears in from six to eight days, even when pure water is the irrigant.

LOUIS KOLIPINSKI, M.D.

BERLIN, August 6, 1887.

NEW INVENTIONS.

A NEW STETHOSCOPE ON THE AUTOPHONIC PRINCIPLE.

BY R. LEAMAN, M.D.,

DEMONSTRATOR OF CLINICAL MEDICINE IN THE JEFFERSON MEDICAL COLLEGE.

LAST winter Prof. Da Costa, in a lecture introductory to diseases of the chest, suggested that a simple resonating apparatus might be applied to the single stethoscope as others had attempted to apply a microphonic arrangement to the double instrument. This suggestion I laid before Mr. Hentschke, an instrument maker, who has succeeded in making an improvement in both the single and double instrument, which, after due and unbiassed trial, we consider the best instruments in the market. The idea of applying membranes to stethoscopes for the purpose of reinforcing the sound-waves, is, of course, by no means a new one.

Two features, however, are brought out in this "autophonic stethoscope" which are new. The fish skin membrane used can be safely stretched very tight, and is not affected by damp weather; also, the membrane is arranged in such a manner as to form what we might call an autophone. A conical shaped diaphragm is inserted in the conical end of the stethoscope with an

A. Represents the improved gun-metal stethoscope, with earpiece as devised by Prof. Da Costa, and the protecting cap upon the opposite extremity. *B*. Shows the diaphragm with the fish skin stretched over it. *C*. Shows the protecting cap.

interspace between, which acts as a resonating chamber. The result of this arrangement is not only to increase somewhat the loudness of sounds, but it also enables us to define sound better.

In one instance, a heart murmur which was inaudible with the ordinary double stethoscope, was plainly brought out when the resonating chamber was attached. Prof. Da Costa states that with the single autophonic stethoscope he has noticed that the sounds are made clear without the removal of the protecting cap.

Dr. J. C. Wilson informs me that he has "used the autophonic stethoscope with great satisfaction during his past term of service in the wards of the Philadelphia Hospital."

1033 VINE ST.

NEWS ITEMS.

CLINICS AT THE INFIRMARY FOR NERVOUS DISEASES, PHILADELPHIA.—This hospital, which has been well known for many years, has been handsomely rebuilt on the old site, at the corner of Seventeenth and Summer Streets, Philadelphia, and is devoted exclusively to nervous diseases and orthopædics.

The service for outpatients at the hospital has a quite peculiar interest from the mode in which it is managed. In the first place, these clinics are held by the physicians with the assistance of a large staff of assistants. Three rooms on the ground floor, well aired and lighted; a large adjoining room for electrical treatment; a dark closet for ophthalmoscopic purposes; and a photographic chamber, give ample facilities.

The three physicians each hold a weekly clinic, and lectures are now being given twice a week in the lecture room of the hospital.

The method followed at these clinics may be illustrated by a brief mention of the plan adopted by the

senior physician, Dr. S. Weir Mitchell. One of his assistants, Dr. Hinsdale, obtains in one of the case-books the introductory knowledge needed in every instance, and endeavors to form a rough diagnosis; this sketch comes before Dr. Mitchell, who questions the patient and endeavors, as do all the physicians, to follow a printed card which gives the order in which the symptoms shall be noted. This regularity of sequence makes the notes taken more easily comparable. If the notes need to be elaborate, Dr. Morris Lewis examines thoroughly the heart, the lungs, and abdomen; Dr. de Schweinitz the eye and ear; Dr. J. M. Taylor the secretions; while Dr. Massey makes the electrical tests. Each aid has thin slips of paper on which are printed clearly the main points of inquiry, and these, when filled out, come back to the clinical clerk for insertion with the notes of the case. It is rare that all the slips are needed; often a mere negation records absence of heart and lung troubles; but, by this plan, when very accurate notes are needed, they can be had.

Often no opinion is given until a case has been examined at a second visit and a more extended history obtained. It would be difficult to secure more care in diagnosis than is thus attained.

The seven sets of books used in these clinics for records are peculiar to the hospital; they are for epilepsy, chorea, neuralgias, local paralysis and local disease of nerve trunks, paralysis of adults, infantile paralysis, and miscellaneous cases. The plan provides volumes available for examination or inquiry regarding these disorders, and saves the inconvenience of sifting out from a miscellaneous collection the special cases that may be required.

The pages of the chorea book are printed with about fifty questions regarding family history, the previous health of the patient and particularly previous attacks of the disease, the exact date of onset of the present attack, the order in which the members were affected, and very many questions regarding the present condition of the patient. The answers to these questions have secured full statements and have aided the researches on *Chorea and Weather*, by Dr. Mitchell, and on *Chorea and Rheumatism*, by Dr. Morris Lewis, as well as Dr. Mitchell's papers on *Chorea in the Black* and on *Habit Chorea*. At present Prof. Osler is using them to call back to the hospital for reëxamination of the heart all the old cases of chorea, which now number five hundred at least. Dr. de Schweinitz is carefully restudying the eyes of the choreic.

For palsy of infancy case books have been printed with spaces for answers to fifty-eight different items. From a vast collection of cases thus studied Dr. Sinkler was enabled to draw his conclusions as to the relation of the paralyses of childhood to temperature.

The less interesting cases which return frequently, are seen by an assistant, and thus these large clinics are handled with a speed, and yet with an amount of care, which is remarkable.

Medicines are given at a little above cost—at such a rate, in fact, as merely to pay for the drugs and sustain the apothecary.

These clinics are, as a rule, open to all visiting physicians; but we believe Dr. Mitchell, at least, declines to lecture clinically to a mixed class of men and women, and thinks that opportunity for study is lost by teaching at clinics of this kind.

The electrical service under Dr. Massey is very complete, abundant facilities being provided for the use of galvanic, faradic, and franklinic currents in the electrical room and throughout the house. By a novel arrangement the galvanic current is made available for use at the bedside of each patient in the hospital, and all may be treated simultaneously without danger of exhausting the battery. This is accomplished by using the current of the incandescent lighting plant, special wires being laid beneath the floors and connected with plug receptacles, which are placed in the base-boards near each bed in the wards, and beneath the lamps in the private rooms. To these receptacles movable tables provided with a meter and rheostat may be attached at will.

The use of this strong current in medical work is made possible by the special form of rheostat, or current controller, devised by Dr. Massey, which consists of a circular pencil-mark arrangement, permitting any gradation of current from a fraction of a milliampère to fifty milliampères, by the simple movement of a lever. The current used, both for this work and for the electric lighting, is derived from an Edco storage battery of sixty volts and slight internal resistance, fed by a dynamo, both being situated in the basement. The franklinic currents are derived from a four-plate twenty-two-inch Toepler-Holtz machine, with a spark capacity of seven inches.

A very interesting and unusual feature of this hospital is a room on the ground floor devoted to such research as requires instruments of precision. There are, of course, apparatus such as thermometers of all kinds, sphygmographic instruments, and others for counting blood-corpuscles and estimating hæmoglobin; mechanical arrangements for studying and recording tremors and knee-jerks; and devices for the study of clonus, on which Dr. Mitchell is now engaged. In the middle of the room is a large kymographion, with the usual arrangements of tuning forks, etc., for the records of small fractions of seconds.

It is the desire of the managers and of the physicians that the numerous researches which have found their means in these clinics in the past, should in the future receive every encouragement. No hospital in America has, we believe, in the last ten years so notable a record of original work done.

We propose shortly to speak of some of the methods in use here in the treatment of disease.

A MEDICAL COLLEGE AT PORTLAND, OREGON.—A medical college has recently been organized in Portland, Oregon, in connection with the Oregon State University. A faculty of thirteen members have been elected.

THE AMBULANCE TRAINING OF RAILWAY EMPLOYÉS.—In view of the recent railway accident in a western State, where help was inaccessible, the success of this movement in Scotland is of interest. The *British Medical Journal* of August 13, 1887, speaks as follows of this new branch of ambulance training:

"One of the most valuable developments of the ambulance movement in Scotland has been in the train-

ing of railway servants. A most interesting meeting took place in Dunfermline on Sunday evening, when sixty-three railway servants who had received training in ambulance were presented by the Earl of Elgin with the certificates of the St. Andrews Ambulance Association, ninety-three having attended the course of instruction. Various speeches were made by well known local magnates on the great value to their own class and to the public which would accrue through railway servants being properly instructed and accomplished in ambulance work. Drs. W. B. Dow and Oliphant Dow also addressed the meeting, they having conducted the class. The Provost of Dunfermline suggested that ambulance appliances should be placed in all railway stations, and a good deal could be said in favor of this idea."

CONTAGION IN LAUNDRIES.—DR. RUSSELL, medical officer of Glasgow, says that during the last ten years over a million of articles (from persons affected with every kind of contagion known in this country) have passed through the Glasgow laundry, and that he has never known a case of interchanged disease, although the women engaged in the laundry have occasionally suffered from handling the linen before the boiling process.—*Popular Science News*, August, 1887.

THE INTERNATIONAL CONGRESS OF HYGIENE AT VIENNA.—The *British Medical Journal* of August 20, 1887, thus describes the prospects of this approaching Congress:

About 1500 members are expected to take part in the proceedings of this Congress, which, as has been already announced, will be opened next month; 1300 persons have already registered their names. Professor Corfield is announced to read a paper on "The Importation of Rags;" Dr. Frankland, on "Sewage," with special reference to the prevention of river pollution; Mr. F. Hayes Whymper, on "The Law Relating to Factories and Workshops;" and Mr. Murphy, on "International Regulations for Preventing Epidemics." The Austrian Government, it is stated, will take a special interest in the labors of the Congress.

INOCULATIONS FOR HYDROPHOBIA IN THE VIENNA GENERAL HOSPITAL.—A request has been presented by the Austrian Chamber of Deputies to the Managers of the General Hospital, asking that preventive inoculations for rabies be made there.

THE PREVENTION OF HYDROPHOBIA IN DOGS.—The report of the Select Committee of the House of Lords on Rabies in Dogs, just issued, is the complement of the report of the Committee on M. Pasteur's system. The latter dealt with the scientific and medical questions raised by the discovery of M. Pasteur; the former deals with administrative measures for the prevention of disease in dogs. The Lords' Committee has done well to insist upon the facts already well known—that the disease is comparatively rare even in dogs, and that but a small proportion of the persons bitten are liable to contract the disease. This aspect of the question has recently been so fully discussed in these columns that it is unnecessary to recapitulate the facts, but it may be stated that the evidence given by experts impressed the Lords Committee with the protective value of immediate cauterization either with the actual cautery or carbolic acid. The administrative improvements recommended by the committee may be divided into those which would have a permanent effect and those which would only be applied during epidemics. The permanent measures recommended are that, in populous places, local authorities should place restrictions on dogs generally, and especially deal stringently with apparently ownerless dogs in their districts; that the symptoms of rabies should be endorsed on dog licenses; and that the local authorities should have power to order that dogs should wear badges which may identify their owners. Those which would have a mere temporary applicability are: That when rabies is prevalent the muzzle should be enforced; that the power of the police-constable should be extended to authorize the slaughter of stray dogs.—*British Medical Journal*, August 13, 1887.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM AUGUST 23 TO AUGUST 29, 1887.

SMITH, JOSEPH R., *Lieutenant-Colonel and Surgeon.*—Ordered to report in person to the Surgeon-General of the Army, on September 2, 1887, on business connected with the public service, and on completion thereof to return to his proper station.—*S. O. 198*, par. 9, *A. G. O.*, August 26, 1887.

BARTHOLF, JOHN H., *Major and Surgeon.*—Leave of absence extended one month.—*S. O. 196*, par. 7, *A. G. O.*, August 24, 1887.

PATZKI, JULIUS H., *Captain and Assistant Surgeon.*—Granted leave of absence for one month.—*S. O. 195*, par. 15, *A. G. O.*, August 23, 1887.

MATTHEWS, WASHINGTON, *Captain and Assistant Surgeon.*—Ordered to proceed to Phœnix, Arizona Territory, on public business, and on completion thereof to return to his proper station.—*S. O. 195*, par. 21, *A. G. O.*, August 23, 1887.

TAYLOR, BLAIR D., *Captain and Assistant Surgeon.*—Granted leave of absence for twenty days, to take effect on or about August 31, 1887.—*S. O. 193*, par. 7, *A. G. O.*, August 20, 1887.

SWIFT, E. L., *First Lieutenant and Assistant Surgeon.*—Ordered to report in person to the Commanding General, Division of the Pacific, for duty with troops at Round Valley Indian Reservation.—*S. O. 195*, par. 20, *A. G. O.*, August 23, 1887.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE, FOR THE WEEK ENDING AUGUST 27, 1887.

BAILHACHE, P. H., *Surgeon.*—Granted leave of absence for thirty days, August 26, 1887.

CARTER, H. R., *Passed Assistant Surgeon.*—Granted leave of absence for twenty seven days, August 25, 1887.

YEMANS, H. W., *Passed Assistant Surgeon.*—Resignation accepted, to take effect September 30, 1887, and leave of absence extended to that date, August 24, 1887.

NORMAN, SEATON—Granted leave of absence for six days, on account of sickness, August 27, 1887,

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THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

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